



TOOELE ARMY DEPOT Tooele, Utah

Monitoring Well D-13 Completion Report Phase II RFI Groundwater Investigation

Contract Number: GS-10F-0179J



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of Engineers®**

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Sacramento District

December 2005



Prepared by:
PARSONS and **KLEINFELDER**
Salt Lake City, Utah

**MONITORING WELL D-13 COMPLETION REPORT
PHASE II RFI GROUNDWATER INVESTIGATION
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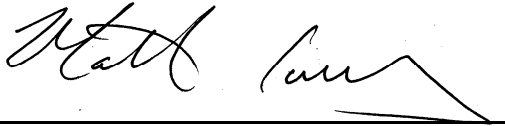
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TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
1. INTRODUCTION	1
1.1 Background Information.....	1
1.2 Project Purpose and Scope	2
2. DRILLING, SAMPLING, AND LOGGING METHODS	4
2.1 Drilling.....	4
2.2 Sampling of Drill Cuttings.....	4
2.3 Record Keeping	5
3. SUMMARY OF SUBSURFACE CONDITIONS.....	6
3.1 Geologic Log.....	6
3.2 Geophysical Logs	6
3.3 Hydrostratigraphic Section.....	8
4. WELL CONSTRUCTION SUMMARY	11
4.1 Construction Techniques and Materials.....	11
4.2 Surface Completion and Survey Coordinates	11
4.3 Deviation Log.....	12
5. WELL DEVELOPMENT	13
5.1 Swabbing and Bailing	13
5.2 Pumping.....	13
6. GROUNDWATER SAMPLING.....	14
6.1 Sampling Methodology	14
6.2 Groundwater Analytical Results.....	14
7. INSTALLATION RESTORATION WASTE	16
7.1 Decontamination Methods	16
7.2 Disposal of Drill Cuttings.....	16
7.3 Disposal of Wastewater	16
8. REFERENCES	18

TABLES

- 1 Summary of Laboratory Results

FIGURES

- 1.1 Site Location Map

TABLE OF CONTENTS

(continued)

APPENDICES

- A PERMITTING:
Right of Entry Permit, Request and Authorization Letter for Well Construction, Applicant Start Card, Driller Start Card, and Well Driller's Report
- B FIELD DOCUMENTATION FOR WELL DRILLING AND CONSTRUCTION:
Daily Field Logs, Field Activity Reports, Health and Safety Briefings, Rig Inspection Logs, and Equipment Calibration Logs
- C GEOLOGIC AND GEOPHYSICAL DATA:
Geologic Log, Geophysical Log, Deviation Log, Cross Section Location Diagram, and Hydrostratigraphic Cross Section
- D WELL CONSTRUCTION DATA:
Well Construction Diagram and Survey Data Report
- E WELL DEVELOPMENT DOCUMENTATION:
Well Development Logs and Developer's Daily Logs
- F GROUNDWATER SAMPLING DOCUMENTATION:
PDB Monitoring Well Sample Log, Groundwater Well Sampler's Daily Logs, Analytical Quality Control Summary, Groundwater Sample Analytical Report with Chain-of-Custody, and Data Review Summary
- G IRW MANAGEMENT OF SATURATED DRILL CUTTINGS:
Disposal Recommendation Letter, TEAD Letter of Authorization, Drill Cuttings Sample Analytical Report with Chain-of-Custody, and Uniform Hazardous Waste Manifests
- H IRW MANAGEMENT OF DEVELOPMENT AND DECONTAMINATION WATER:
Disposal Recommendation Letter, TEAD Denial Letter, Waste Water Sample Analytical Report with Chain-of-Custody, Waste Profile, and Uniform Hazardous Waste Manifests

ABBREVIATIONS AND ACRONYMS

µg/L	micrograms per liter
ASC	Analytical Services Center
ASTM	American Society for Testing Materials
bgs	below ground surface
btoc	below top of casing
EPA	Environmental Protection Agency
gpm	gallon per minute
IWL	Industrial Wastewater Lagoon
MCL	maximum contaminant limit
NAD	North American Datum
NEB	Northeastern Boundary Plume
NGVD	National Geodetic Vertical Datum
NTU	nephelometric turbidity unit
NPL	National Priorities List
PDB	passive diffusion bag
PID	photoionization detector
ppm	parts per million
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RL	reporting limit
SWMU	Solid Waste Management Unit
TCE	trichloroethene
TEAD	Tooele Army Depot
UAC	Utah Administrative Code
UID	Utah Industrial Depot
USACE	United States Army Corps of Engineers
USCS	Unified Soil Classification System
VOA	volatile organic analysis
VOC	volatile organic compound

1. INTRODUCTION

This report contains detailed information regarding the drilling, construction, development, and sampling of groundwater monitoring well D-13, located on private property northeast of the Tooele Army Depot, Utah (TEAD). This report was prepared for the U.S. Army Corps of Engineers (USACE), Sacramento District, under Contract GS-10F-0179J, on behalf of TEAD by Kleinfelder, Inc., (Kleinfelder) and Parsons in Salt Lake City, Utah.

TEAD is an active military facility located approximately 35 miles southwest of Salt Lake City, Utah (Figure 1.1) and it has been in operation since 1942. TEAD has been a primary storage, maintenance, and disposal facility for conventional munitions since its inception. Due to impacts to groundwater quality resulting from this activity, TEAD was added to the National Priorities List (NPL) under the federal Superfund program in October 1990.

1.1 BACKGROUND INFORMATION

Historical wastewater discharges to the unlined Industrial Wastewater Lagoon (IWL) at TEAD resulted in a large impacted groundwater plume beneath the eastern portion of the Depot. A large number of monitoring wells, piezometers, extraction wells, and injection wells have defined a trichloroethene (TCE) plume along downgradient, northern, and western extremes of the Depot. This occurrence of impacted groundwater was designated the Main Plume.

In 1986, TCE was detected in an offsite production well located north of the Industrial Area, approximately 5,000 feet northeast of the IWL. In 1994, well C-10 was installed at the northeastern boundary of the Depot. TCE was detected at a concentration of approximately 240 micrograms per liter ($\mu\text{g/L}$) in groundwater sampled from well C-10, located directly across the road from the impacted offsite production well (Kleinfelder, 1998).

Additional groundwater investigations were conducted to further assess the nature and extent of groundwater contamination at the northeastern boundary of TEAD. These additional investigations indicated that the contamination in well C-10 and the adjacent offsite production well had likely originated from a source different from that attributed to the Main TCE plume. Thus, two plumes of groundwater contamination were indicated. This second, more easterly plume, was designated the Northeastern Boundary (NEB) Plume. The oil-water separator at Building 679 in the former industrial area (now the privately owned Utah Industrial Depot [UID]) was identified as a major source of this plume (Kleinfelder, 2002).

A subsequent investigation was designed to define the approximate offsite extent of the NEB Plume. The plume, which is relatively narrow beneath the former industrial area, extends

approximately 16,000 feet downgradient (to the north) from the identified source at Building 679 (Parsons, 2003a). The installation of groundwater monitoring well D-13 was conducted in accordance with the Phase II Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Solid Waste Management Unit (SWMU) 58 Work Plan (Parsons, 2003b) and Work Plan Sampling and Analysis Plan Addendum 1 (Parsons, 2004) that were approved by the U.S. Army and the State of Utah prior to initiating fieldwork.

1.2 PROJECT PURPOSE AND SCOPE

Monitoring well D-13 is one of eight groundwater monitoring wells installed between September 2004 and January 2005 during the Phase II RFI at SWMU 58. SWMU 58 encompasses the source areas and the areas impacted by the Main and NEB TCE Plumes. Objectives of the groundwater investigative component of the Phase II RFI are to:

- Refine the vertical limits and lateral extent of the Main and NEB chlorinated solvent plumes;
- Further characterize the distribution of contaminants within the plumes;
- Ascertain whether there are additional contaminant sources to the NEB Plume and assess their impacts to groundwater;
- Assess the risks to human health associated with the unmanaged (offsite) portion of the NEB Plume; and
- Refine the existing numerical groundwater flow and solute transport models with respect to fate and transport, in order to better predict the potential extent (stability) of the plume in the future.

Investigative efforts described in this completion report were supervised by a Kleinfelder State of Utah-registered geologist who was present for critical on-site activities. Before drilling began, a Right-of-Entry Permit was obtained from Tooele County, and a permit for well construction was obtained from the State of Utah Division of Water Rights. Copies of the Right-of-Entry Permit, the Request and Authorization letters, Applicant Start Card, and Driller Start Card are included in Appendix A. Underground utility clearance was obtained through Blue Stakes Location Center.

Monitoring well D-13 was drilled, constructed, developed, and sampled between September 28, 2004, and November 23, 2004. Drilling and construction activities were conducted by Layne Geoconstruction (Layne) of Salt Lake City, Utah. Following completion of the well, Layne submitted a Well Driller's Report, which is included in Appendix A. Well development and groundwater sampling were completed by Veolia Water North American Operating Services, LLC, which operates the groundwater treatment plant at TEAD. Laboratory analyses were provided by Analytical Services Center (ASC) of Lancaster, New York, a division of Ecology

and Environmental, Inc. (E and E), a State of Utah and a USACE-certified analytical laboratory. Down-hole geophysical logging was performed by RAS, Inc. of Golden, Colorado.

Monitoring well D-13 is located in the SW ¼ of Section 17, T3S, R4W, Salt Lake Base and Meridian. This well is accessed via the abandoned railroad bed from Rogers Road.

The primary purpose of monitoring well D-12 is to serve as a sentinel well that will detect lateral spreading of the NEB groundwater plume to the east and/or northeast in this area. A secondary objective of this and other sentinel wells that are being installed along the eastern margin of the NEB plume is to better define groundwater flow (Parsons, 2003b).

2. DRILLING, SEDIMENT SAMPLING, AND LOGGING METHODS

2.1 DRILLING

Groundwater monitoring well D-13 was drilled by Layne Geoconstruction of Salt Lake City, Utah, between September 28th and October 11th, 2004 using a Becker AP-1000 percussion hammer drilling rig manufactured by Drill Systems. The AP-1000 advances a dual-walled 10-inch diameter drill pipe into the subsurface by means of a diesel-powered pile hammer. Circulating air supplied by an onboard and auxiliary compressor is pumped down the space between the inner and outer walls of the drill rod to the drill bit, where sediment cuttings are picked up and carried back through the center of the drill rod and out of the borehole as the air returns to the ground surface. Cuttings are separated from the discharging air by a cyclone. Dry cuttings were collected and spread on the ground around the well site whereas saturated cuttings were contained in 55-gallon drums pending analytical results.

During drilling of monitoring well D-13, strongly cemented layers were encountered starting at a depth of approximately 284 feet below ground surface (bgs). In order to drill through the cemented material, the rig was fitted with a rotary head attachment and the hole was advanced using air rotary drilling method from 288 to 305 feet bgs. After drilling through the cemented material, the rotary attachment was removed and the remainder of the hole was drilled using the percussion hammer drilling rig.

2.2 SAMPLING OF DRILL CUTTINGS

Cuttings were observed continuously as they discharged from the cyclone and were collected in 1-quart bags and chip trays. The cuttings were logged at 5-foot intervals or when significant changes in lithology occurred. Drive sampling, used in previous boreholes drilled as part of this program, was rarely successful due to refusal in coarse sediments and inability to anticipate encountering thin fine-grained layers. Thus, a more accurate and complete borehole log resulted from continuous observation of cuttings from the cyclone.

Drill cuttings were logged using the American Society for Testing Materials (ASTM) Method D2488-00. The Unified Soil Classification System (USCS) was used for designating the various types of unconsolidated material encountered. Where a conflict between the two methods was identified, the ASTM convention took precedence. Color of the drill cuttings (when wetted) was noted by referencing the Munsell color chart system. Estimated percentages of gravel, sands, and fines; degree of roundness and lithology/mineralogy of any gravel clasts; moisture content; degree of cementation; and any other notable attributes were routinely recorded in the sample description. The Becker Hammer Drilling method allows for a maximum clast size of about 6 inches to pass through the drill pipe to the surface. While cobbles greater than this dimension,

and possibly boulders, may exist over certain intervals, approximate percentages cannot be estimated.

Grab samples of drill cuttings from below the saturated zone were logged and screened for volatile organic compounds (VOCs) using an Environmental Instruments photoionization detector (PID). PID readings were also included on the boring log. PID readings from the grab samples from this boring ranged from 0.2 to 2.6 parts per million (ppm). A composite of these samples was submitted for VOC analysis, and was used to determine the proper means of disposal for all saturated cuttings from this borehole. Saturated drill cuttings were containerized in 55-gallon drums and transported to the UID 90-day while awaiting analytical results.

2.3 RECORD KEEPING

While on site, Kleinfelder's geologist maintained records of all activities in a bound field logbook, on Field Activity Reports, Safety Meeting Logs, Drill Rig Inspection Logs, and Equipment Calibration Logs. Copies are presented in Appendix B.

3. SUMMARY OF SUBSURFACE CONDITIONS

3.1 GEOLOGIC LOG

A Kleinfelder geologist was on site during drilling to collect samples of drill cuttings in order to maintain a continuous geologic log of the subsurface conditions that were encountered. Lithologic descriptions and the geologist's observations were entered onto the geologic log. The geologic log of the cuttings that were sampled during drilling of the monitoring well D-13 borehole is included in Appendix C.

The geologic log indicates that the boring was drilled in unconsolidated valley fill sediments from the ground surface to a total depth of 385 feet bgs. Most of the subsurface sediments were poorly graded sand and gravel with varying amounts of boulders, cobbles, silt, and clay. The coarser-grained sediments (i.e., gravels) are interpreted to have been deposited in a dynamic high energy depositional environment of coalescing alluvial fans. They are interpreted to represent one or more of several types of alluvial fan deposits, including debris flow, stream channel, sheetflood, and sieve, that have been defined (Collinson, 1978) based on depositional process, location on the fan, deposit morphology, degree of sorting and bedding, etc. The majority of the coarse-grained sediments are sub-rounded to sub-angular clasts of quartzite and limestone that appear water-worn. While some angular clasts were observed, these are likely products of the mechanical breaking caused by the drilling method.

Horizons of less permeable fine- or finer-grained, generally clay-rich sediments were encountered at depths of 62-78, 80-84, 96-101, 165-167, 240-242, and 250-256 feet bgs as indicated on the geologic log. While some of the finer-grained clay- and/or silt-rich sediment occurrences may be of lacustrine or floodplain origin, others may represent debris flows (Collinson, 1978) and/or possibly stream overbank deposits. As shown on the geologic log, some weak to moderately cemented and strongly caliche-cemented zones were also encountered at depths of 78-80, 94-97, 105-106, 145-147, 163-165, 176-180, 207-223, 284-292, 294-298, 321-322, 327-328, 335-339, 347-351, and 377-378 feet bgs. No bedrock was encountered during drilling of monitoring well D-13.

Following well construction and development the depth to water was measured at 356.98 feet below top of casing (btoc) by Veolia Water. No perched water was encountered during drilling of monitoring well D-13.

3.2 GEOPHYSICAL LOGS

As a secondary interpretive tool, down-hole geophysical logging of monitoring well D-13 was completed within the polyvinyl chloride (PVC) cased well following construction. Natural

gamma ray (gamma) and induction electric (induction) logs were run simultaneously by RAS on December 7, 2004 using a combination gamma ray-induction tool manufactured by Century Geophysical Corporation of Tulsa, Oklahoma. Data validation was attained via a repeat logging run of a selected stratigraphic interval within the well.

The gamma and induction electric logs for this well are contained in Appendix C. On a separate log printout in that appendix the borehole geology has been added, and an attempt has been made to correlate pronounced gamma and induction electric highs and lows with fine-grained, generally clay-rich units and caliche-cemented zones. The reader should refer to that multipage printout when reviewing the comments presented below concerning the description and interpretation of the geophysical logs.

The gamma logging technique measures the natural gamma emissions emanating from the formation surrounding the borehole. This radiation is released from nuclei of an unstable element decaying to a more stable element. Potassium 40 is the element responsible for most of the gamma radiation detected by the gamma ray probe. This element is very abundant in a number of rock-forming minerals, such as potassium feldspar, that weather to clays. Thorium- and uranium-bearing minerals also produce a gamma ray response, but in most geologic environments, including the unconsolidated valley fill deposits at the project site, the potassium-40 isotope is most abundant. Hence, as the clay content of the sediment increases the gamma ray response also increases. Conversely, the gamma response becomes progressively weaker as the quartz content of the sediment increases. A comparison of this and other monitor well boring logs with their respective gamma ray logs shows a very strong correlation between finer-grained, clay-rich units and gamma ray peaks. Slight offsets between a gamma peak and the location of the fine-grained interval are attributed to an inability to exactly define the depths of unit contacts owing to the time required for the cuttings to travel up the borehole and reach the surface. The measurement scale of the gamma-ray log is in American Petroleum Institute (API) units, accepted as the international reference standard that allows consistent comparisons to be made between a wide variety of gamma-ray counting devices.

The gamma ray response for this well is fairly consistent with almost all readings falling between 20 and 40 API units. This signature is compatible with the general paucity of fine-grained clay-rich intervals as verified by the geologic log. Gamma peaks of between 40 and 60 API units typically correspond to fine-grained clay-rich units identified during logging. A gamma ray spike of about 70 API units was generated at about 364 ft but could not be correlated with any clay-rich units according to the borehole log. Gamma ray response for coarser-grained gravel units is highly variable, but typically the magnitude of the response is less than that of the fine-grained units.

The absence of a more pronounced gamma response for the finer-grained clay-rich zones may reflect one or more factors including clay mineralogy, e.g., a lack of potassium-bearing clay minerals such as illite.

The induction log measures the conductivity from high frequency alternating currents that are induced into the geologic formation, and is best suited where the formation is characterized by low to medium (less than 50 ohm-meters) resistivity values, the geologic medium exhibits medium to high porosity, and the open borehole was advanced using mud or air as the drilling fluid. Induction logging can be performed in boreholes cased with PVC, but not with steel pipe. Although the induction device measures conductivity, by convention the conductivity readings are converted to a resistivity curve when plotted on a down-hole log via a simple inverse relationship.

Three curves are shown on the induction logs that were run by RAS. They represent the direct conductivity (millimhos/meter) readings as designated by a dashed (“cond”) curve on the plot, a conductivity (“ap-cond”) curve designated by a dotted line that has been corrected for the temperature of the induction probe, and resistivity (ohm-meters) measurements derived from a conversion of the temperature-corrected conductivity readings that are depicted as a solid (“res”) line on the induction log plot. Note that although the conductivity and resistivity curves appear to mimic one another, the scales for the two properties are reversed since their relationship is an inverse one.

Resistivity and conductivity responses are highly variable even within individual boring log units. Resistivity readings ranged between about 15 and >250 ohm-meters. The temperature-corrected conductivity response varied from <10 to approximately 75 millimhos/meter. These variations are interpreted as differences in porosity, moisture and clay content within the various unconsolidated sediment units. Fine-grained units such as clay and silt, typically show lower resistivity and higher conductivity values, even when ~20-30% gravel is present. Resistivity peaks within units are often correlated with caliche cementation zones, although the resistivity readings are often higher in adjacent uncemented coarser-grained sediment. Resistivity peaks may also be associated with very coarse-grained material. For example, a boulder, mentioned in the geologic log at 135 ft bgs, correlates with a resistivity peak at that depth.

In summary, the induction electric and gamma logs appear consistent with the subsurface conditions as interpreted from the drilling response and geologic logging of the drill cuttings.

3.3 HYDROSTRATIGRAPHIC SECTION

To aid in understanding the subsurface geology and water table configuration in the vicinity of this monitoring well boring, the geologic log for this well was plotted on a straight line cross section trending largely north-south over a distance of approximately 9,000 linear feet also

defined by monitoring well borings D-12 and D-16 (Plate C-4). Well D-13 was projected onto the section. The projection distance for that well is provided on the cross section. The location of this cross section (B – B') is shown on Plate C-3. Note that only cross section B - B' is provided in this well completion report, since it is the only section that is partially defined by well D-13.

Study of the cross section suggests that the predominantly fine-grained sediment units do not appear to be laterally continuous between the three D-series wells that lie on or have been projected onto Cross Section B–B'. Thus, the correlation of these units from borehole to borehole is poor. This is partially due to the substantial distances between them (up to 1 mile).

The difficulty in correlating distinct fine-grained units is not surprising, given that the unconsolidated valley fill within SWMU-58 was largely deposited in a dynamic high energy depositional environment of coalescing alluvial fans. Fine-grained units deposited under such conditions are characterized by limited thickness and areal extent, and this also appears to hold true for the project area, in addition to well boring D-13. Many of the fine-grained silt- and/or clay-rich intervals pinch out over a few hundred ft due to a change in the depositional environment.

Another plausible explanation for limited areal extent is post-depositional erosion and sediment reworking. Channel erosion is strongly suspected of causing the substantial difference in the thickness of a clay-rich lacustrine or floodplain deposit encountered in two closely spaced borings at Building 600 in the Utah Industrial Depot. It almost certainly has been operative elsewhere.

There is another factor that may frustrate correlation of fine-grained units in this and other Phase II RFI groundwater monitoring wells. Most of these fine-grained units, even if they exhibit some lateral extent, were generally deposited on alluvial fan surfaces that are inclined several degrees or more. Over a distance of just a few hundred feet a dip of even a few degrees translates into a change in elevation of up to ten feet or more. Moreover, for monitoring wells spaced a thousand feet or greater, which is not atypical for the groundwater monitoring array at TEAD, differences in the elevation of a laterally continuous unit could be on the order of several tens of feet.

As per the fine-grained units, little success has been achieved attempting to correlate caliche-cemented zones that occur primarily in the gravels. The same general comments presented above for fine-grained sediment deposits also apply to correlation of cemented zones. The ability to correlate both fine-grained sediment units and cemented zones between monitoring wells in the project area may be contingent upon distinct downhole gamma and induction electric log signatures.

Finally, there is an elevation drop in water level of the regional unconfined aquifer on the order of about 90 to 100 feet going northeast from wells C-31 (gw elev 4469 ft), C-18 (gw elev 4468 ft), C-13 (gw elev 4463 ft), and C-10 (gw elev 4460 ft) (all of which are located along the

northeast boundary of TEAD) into the off-Depot region where monitoring wells D-12 (gw elev 4367 ft), D-02 (gw elev 4374 ft), D-13 (gw elev 4367 ft), D-04 (gw elev 4372 ft), D-06 (gw elev 4372 ft), and D-16 (gw elev 4370 ft) are located. Groundwater elevation data presented here were generated either Fall 2004 or Spring 2005. An early groundwater elevation contour map incorporating initial water level data from the first ten offsite D-series monitoring wells (Parsons, 2003a; Figure 3.8) shows the steep hydraulic gradient between the four C-series wells listed above and four of the D-series monitoring wells due to the substantial difference in the potentiometric surface elevations. This pronounced drop in water level over a sizeable area could be due to a post-depositional fault or faults in the alluvium. The thick gouge-like fat clay layer from 310 to 334 feet bgs recorded on the borehole log of D-12 may be indicative of one such structure, though more data is needed to support this conjecture.

4. WELL CONSTRUCTION SUMMARY

4.1 CONSTRUCTION TECHNIQUES AND MATERIALS

During drilling of monitoring well D-13 borehole, the 10-inch Becker Hammer drive casing was advanced to a depth of approximately 385 feet. Well construction occurred between October 12th and October 14th, 2004. Monitoring well D-13 was constructed inside the 385 feet of drive casing and the bottom of the well was tagged at a depth of 382 feet bgs. Two 10-foot sections of threaded, 4-inch diameter Schedule 40 PVC well screen with 0.010-inch wide slots and 37 10-foot sections of 4-inch diameter Schedule 40 PVC blank casing were assembled and lowered inside the drive casing to the bottom of the borehole. The screen extends from 362 feet to 382 feet bgs. The well riser consists of 2.65 feet of aboveground blank well casing.

Silica sand (16–40) was added to the annulus between the PVC and the borehole in the interval adjacent to the well screen. To help minimize the risk of bridging and to confirm that the correct volume of sand was added, the sand was poured slowly into the annulus from the surface and continuously monitored until the top of the sand interval was approximately 2 feet above the top of the screen. The sand-pack interval was isolated from upper portions of the borehole with an 8-foot thick seal of bentonite clay pellets. The remaining annulus above the bentonite clay pellets was grouted to approximately 30 inches bgs with 30 percent solids bentonite slurry in accordance with Utah Administrative Code (UAC) R655-4-9.4.2. A well construction diagram is provided in Appendix C.

4.2 SURFACE COMPLETION AND SURVEY COORDINATES

A locking, 6-foot long, 10-inch diameter protective casing was placed around the uppermost part of the monitoring well casing, with approximately 3 feet above and 3 feet below ground. Concrete was used to partially fill and anchor the protective casing, fill the upper 5 feet of the borehole annulus, and build a 3-foot square by 1-foot thick pad (6 inches above ground surface) around the finished well. The concrete pad was finished to slope away from the protective casing and was embedded with a brass survey monument.

Four 4-inch diameter steel bollards were positioned around the pad to protect it from vehicular traffic. The bollards stand approximately 4 feet above the ground surface and extend about 2 feet bgs into concrete-filled post holes.

Ward Engineering Group of Salt Lake City, Utah, surveyed the well on December 10, 2004. Coordinates for the well locations are referenced to the North American Datum (NAD) 1983 Utah State Plane Central Zone and the elevation to the National Geodetic Vertical Datum (NGVD) 1929. Survey data are included in Appendix D.

4.3 DEVIATION LOG

Deviation (directional) logging was also conducted on December 8, 2004 by RAS, Inc. using magnetic survey instrumentation to determine the degree to which the well was plumb (vertical). This logging was conducted under a contract with the Army Environmental Center.

Deviation or directional logging records the measured depth and direction of the surveying tool at the bottom of the boring or well relative to its position at the top of the borehole, and the inclination of the borehole or well. Raw survey data collected during the instrument's traverse down the borehole is used to determine the path of the borehole in three-dimensions (Welenco, 1996).

A plan view showing the deviation of well D-13 from vertical is presented in Appendix C. The plot shows that the well began deviating to the north in the upper part of the hole, and with increasing depth the direction of the borehole changed to north-northwest. The inclination of the boring also increased with depth. At the termination depth the bottom of the boring showed a horizontal displacement of 57.4 feet northwest of the top of the borehole. That distance represents an extreme deviation from vertical for a well that only went to 385 ft bgs, and suggests that the actual water level in D-13 is approximately 5 feet higher than the measured water level. The magnitude of this deviation from vertical is not believed to be typical of the groundwater monitoring wells installed within unconsolidated valley fill in the project area. The relatively few deviation surveys that have been performed on groundwater monitoring wells at TEAD and vicinity seem to support this conclusion, but additional directional survey data are needed. Much of the deviation from vertical in D-13 occurred below a depth of 200 ft and is believed to be due, at least in part, to the presence of several strongly caliche-cemented zones encountered below 284 ft bgs. Changing drilling method from percussion hammer to air rotary between 288 and 305 ft bgs in response to the difficult drilling conditions may also have exacerbated the borehole deviation.

5. WELL DEVELOPMENT

Groundwater monitoring well D-13 was developed using swabbing, bailing, and pumping methods on October 19 and 20, 2004. Development continued for approximately 8 hours and 5 minutes until the turbidity of the water produced was less than five nephelometric turbidity units (NTUs). All development water was collected and contained for later disposal pending analytical results (see Section 7.3). Well development records are included in Appendix E.

5.1 SWABBING AND BAILING

Swabbing and bailing took place for approximately 3 hours and 22 minutes. Swabbing was done with a loose fitting surge block with an oversized rubber disk, slightly smaller than the inner diameter of the screen. Periodic measurements of pH, temperature, electrical conductivity, turbidity, and comments regarding the appearance of discharge water were recorded on well development records (Appendix E). Approximately 105 gallons of water were removed from well D-13 by bailing during development.

5.2 PUMPING

After swabbing and bailing the well, development was completed using an electric submersible pump. The pump was lowered to the bottom of the screened interval and operated intermittently at rates ranging from 3.84 to 4.09 gallons per minute (gpm) for approximately 4 hours and 43 minutes. During development pumping, the pump was periodically shut off and the water in the discharge piping was allowed to back-flush (surge) into the well. Pumping and periodic back-flush surging was continued until there was no noticeable increase in the discharge water turbidity. Periodic measurements of pH, temperature, electrical conductivity, turbidity, and comments regarding the appearance of discharge water were recorded on well development records. A total of 896 gallons of groundwater were removed by development pumping. The final turbidity was measured at 4.09 NTU.

6. GROUNDWATER SAMPLING

6.1 SAMPLING METHODOLOGY

Monitoring well D-13 was sampled using passive diffusion bag (PDB) sampling techniques. PDB sampling is performed without purging and involves lowering a polypropylene bag filled with distilled water to a predetermined depth. Once in place, the water within the PDB sampler is allowed to equilibrate with the surrounding groundwater for two weeks. During this time, VOCs diffuse into the distilled water. The PDB sampler is then removed from the well and water is transferred into three pre-preserved 40 mL volatile organic analysis (VOA) vials.

Two PDB samplers were placed in monitoring well D-13 on November 4, 2004. Both samplers were placed at a depth of 374 btoc. The PDB samplers were retrieved from well D-13 and sampled on November 23, 2004. Groundwater samples collected from well D-13 were assigned sample numbers D-13GW001 and D13FD001.

After the sample containers were filled, they were placed into an ice-chilled cooler and shipped overnight to ASC, a State of Utah and USACE-certified analytical laboratory, for VOC analysis. Chain-of-custody forms were filled out and used to document the sampling dates, analytical parameters requested, and proper sample handling. Completed chain-of-custody forms and cooler receipt forms are included in Appendix F.

6.2 GROUNDWATER ANALYTICAL RESULTS

Analysis for VOCs was completed using U.S. Environmental Protection Agency (EPA) Method 8260B. The only VOC detection in the groundwater from D-13 was chloroform at a concentration below the reporting limit (RL). The significance of the chloroform remains unknown, but the reported value may be spurious. The analyte was not detected in D-13 during the Spring 2005 sampling event, and has not been reported in upgradient well D-12 during the well installation and Spring 2005 sampling events. Thus, it may not be reproducible. Moreover, an upgradient source of carbon tetrachloride, which degrades to chloroform, has not been identified.

Significantly, no TCE or breakdown products were detected above the reporting limit (RL) in monitoring well D-12, indicating that the eastern margin of the NEB TCE Plume (as defined by the 5 µg/L TCE isoconcentration contour) in this area lies to the west of this well.

The sampling results from monitoring well D-13 are summarized in Table 1. Laboratory reports for the groundwater analyses are included in Appendix F. Also included is an analytical quality control summary describing data quality issues.

TABLE 1

SUMMARY OF LABORATORY RESULTS

Analyte	Federal MCL (µg/L) 95 40CFR 141.11, 141.12, 141.61, & 141.62	Analytical Results (µg/L)	
		D-13GW001	D-13FD001
1,1,1 Trichloroethane	200	ND	ND
1,1,2 Trichloroethane	5	ND	ND
1,1 Dichloroethane	5	ND	ND
1,1 Dichloroethene		ND	ND
1,2 Dichloroethane	5	ND	ND
1,2 Dichloropropane	5	ND	ND
Benzene	5	ND	ND
Carbon tetrachloride	5	ND	ND
Chloroethane		ND	ND
Chloroform	100	0.193	0.195
cis 1,2 Dichloroethene		ND	ND
Ethylbenzene	700	ND	ND
m,p Xylene	10,000	ND	ND
Methylene chloride	3	ND	ND
Naphthalene		ND	ND
o Xylene	10,000	ND	ND
Tetrachloroethene		ND	ND
Toluene	1,000	ND	ND
trans 1,2 Dichloroethene		ND	ND
Trichloroethene	5	ND	ND
Vinyl chloride	2	ND	ND

7. INSTALLATION RESTORATION WASTE

7.1 DECONTAMINATION METHODS

To help minimize the chance that non-dedicated equipment could cross-contaminate groundwater or sediment at well D-13, a rigorous decontamination program was followed. A decontamination station was constructed in the temporary UID RCRA 90-day yard (located south of building 614) that could accommodate the drill rig, drill pipe, and other equipment as needed. Decontamination of equipment was conducted with approved water from TEAD production well WW-3 using a steam cleaner/high-pressure washer. Equipment wash and rinse water were contained in a sump within the decontamination station, and then pumped to a frac tank in the UID 90-day yard hazardous waste where it was managed as suspect in conjunction with rinse and development water from other wells.

7.2 DISPOSAL OF DRILL CUTTINGS

Cuttings in the unsaturated zone were collected below the cyclone in a wheelbarrow and spread evenly on the ground around the well site. Once groundwater was encountered, saturated drill cuttings were containerized in 55-gallon drums and transported to the UID 90-day yard. A saturated sample was collected every 5 feet and, upon completion of the borehole, these samples were composited to a single sample and submitted for laboratory analysis for VOCs. Lab results indicated VOCs were not detected in the cuttings from well D-13. Following TEAD approval, the cuttings were returned to the site of D-13 and evenly spread over the ground surface. A copy of the laboratory results is included in Appendix F.

7.3 DISPOSAL OF WASTEWATER

Water derived from the development of well D-13, including equipment rinse water, was transported from the well site to the UID temporary 90-day yard by MP Environmental Services, utilizing a 5,000 gallon capacity tanker truck, and pumped into a 21,000 gallon capacity frac tank. At the time of transfer the frac tank already held several thousand gallons of water generated from decontamination and development activities associated with well D-12.

Subsequently, groundwater and equipment rinse water generated during well development and decontamination activities associated with the installation of monitoring well D-16 were added to that tank. The tank was then closed and sampled for analysis to determine the most suitable disposal option for this waste stream.

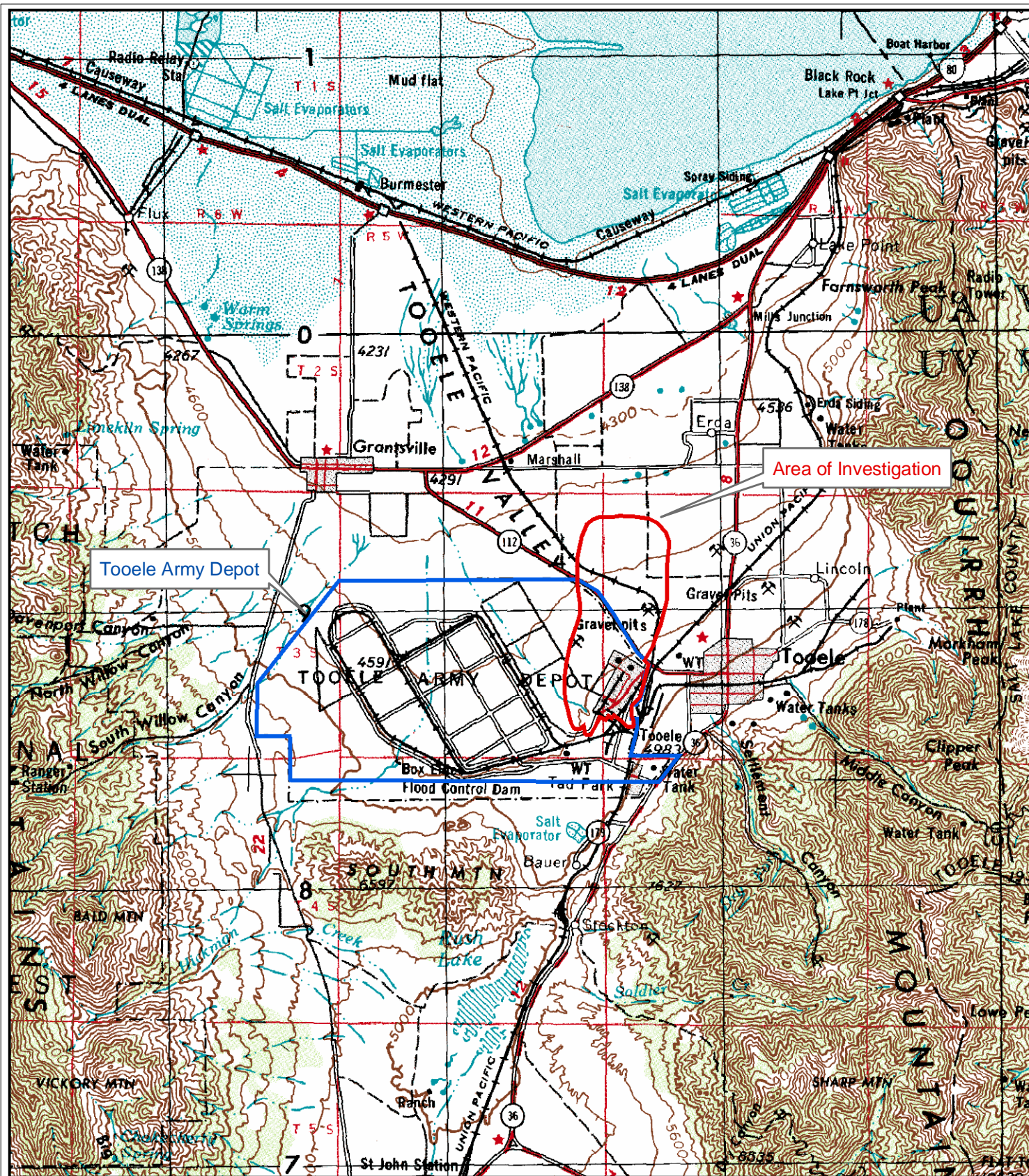
Analysis of the waste characterization sample collected from the frac tank following its closure, i.e., after water associated with the installation and development of wells D-12 and D-16 had

been added, revealed the presence of a number of VOCs (0.590 µg/L benzene, 23.3 µg/L ethylbenzene, 90.8 µg/L m,p-xylenes, 45.3 µg/L o-xylene, 330 µg/L methylene chloride, 2.22 µg/L naphthalene, and 2970 µg/L toluene) that were not detected in the PDB samples of the groundwater taken from these three wells. It was eventually determined that the source of these constituents was a section of previously contaminated hose used on the MP Environmental tanker to pump purge and decontamination water from the tanker during the development of one of the aforementioned monitoring wells.

The water was designated as a F001, F002, and F005 listed hazardous waste based on the VOCs present. As a result, the water could not be processed at the TEAD groundwater treatment facility operated by Veolia Water. Moreover, because the concentrations of methylene chloride and toluene exceeded the permissible limits in wastewater for land disposal, this waste stream was profiled, manifested, and transported to the Clean Harbors Aragonite disposal facility for incineration on December 22, 2004. A copy of the disposal memo is included in Appendix H.

8. REFERENCES

- Collinson, J.D., 1978, Alluvial Sediments, in Reading, H.G., ed., *Sedimentary Environments and Faces*: Elsevier, New York, pp. 15-60.
- Kansas Geological Survey. 2005. <http://www.kgs.ku.edu/PRS/ReadRocks/GRLog.html>.
- Kleinfelder. 1998. Northeast Boundary Groundwater Investigation Report of Findings (Vol. I), Tooele Army Depot, Tooele, Utah. Salt Lake City.
- Kleinfelder. 2002. Final Phase I RCRA Facility Investigation Report for SWMU-58 for Tooele Army Depot, Tooele, Utah. Salt Lake City.
- Parsons, 2003a. Final Addendum to Phase I RCRA Facility Investigation Report for SWMU 58: Groundwater Investigation – Offsite Portion of Northeast Boundary Area. Tooele Army Depot, Utah. August.
- Parsons. 2003b. Final Phase II RCRA Facility Investigation SWMU-58 Work Plan for Tooele Army Depot, Tooele, Utah.
- Parsons. 2004. Final Phase II RCRA Facility Investigation SWMU-58 Work Plan, Sampling and Analysis Plan, Addendum 1 for Tooele Army Depot, Tooele, Utah.
- Welenco, 1996. Water and Environmental geophysical Well Logs: Volume 1—Technical Information and Data, 8th edition.



LEGEND

- Installation Boundary
- Investigation Boundary

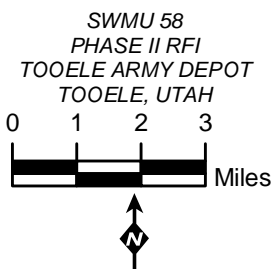
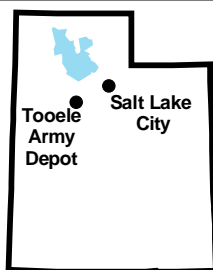


FIGURE 1.1
SITE
LOCATION
MAP

Source: USGS Tooele, Utah 1 x 2 Quadrangle, 1970

APPENDIX A

AMENDMENT ONE
TO
DEPARTMENT OF THE ARMY

RIGHT-OF-ENTRY
FOR
CONSTRUCTION

County
D-6
D-10
D-13

Exp. 19 Nov. 07

PROJECT: Tooele Army Depot, Utah

CONTRACT No. DACW05-9-03-0018

OWNER: Tooele County

Right-of-Entry No. DACW05-9-03-0018 (hereinafter called "said Right-of-Entry"), granting to the Government the irrevocable right of ingress and egress upon the lands of the Owner (hereinafter called "the premises") located in the State of Utah, County of Tooele, described as abandoned Warner Branch of the Union Pacific Railroad Company deeded by donation quitclaim deed to Tooele County as recorded in Book 366 on Pages 742-746 of the Tooele County Recorder's Office records, to maintain and sample from groundwater monitoring wells on the premises for contaminants expected to be in the groundwater, is hereby amended in the following particulars:

1. In addition to maintaining two existing groundwater monitoring wells on the premises (said wells herein designated "D-6" and "D-10"), the Government is hereby granted the irrevocable right to enter upon the premises at any time from the date of this instrument and to install and maintain a third well (herein designated "D-13"). This is a total of three wells on the premises, all as shown in green on Exhibit "A-1", attached hereto and made a part hereof. The access route associated with wells "D-6", "D-10", and "D-13" is shown in orange. The land required for a monitoring well is a 100-foot by 100-foot area, which includes space that allows for equipment access.

2. Exhibit "A" is hereby deleted and Exhibit "A-1" is substituted therefor.

3. The beginning date of Right-of-Entry No. DACW05-9-03-0018 is hereby designated November 20, 2002, and the ending date as November 19, 2007.

-----NO PARTICULARS FOLLOW-----

D-13-1

Said right of entry is amended in the above particulars only, and all other conditions thereof shall remain binding and in full force and effect. This amendment shall henceforth be considered a part of said right of entry as if fully and completely written therein.

WITNESS MY HAND this 7th day of Oct., 2003.

County of Tooele

Dennis L. Rockwell
Signature

Dennis L. Rockwell
Print name

Commission Chairman
Title

GOVERNMENT ENTITY ACKNOWLEDGEMENT

I, Dennis D. Ewing, certify that I am the Clerk of the government entity named herein; and that Dennis L. Rockwell (who signed this instrument on behalf of the governmental agency, was then Commission Chairman of the governmental agency; and that this instrument was duly signed for and on behalf of said governmental agency by authority of its governing body and as within the scope of its powers.



Signature: Dennis D. Ewing

Title: Tooele County Clerk

CERTIFICATE OF ACCEPTANCE

This is to certify that the undersigned officer on behalf of the United State of America hereby accepts the rights granted by the foregoing Right-of-Entry Amendment No. 1.

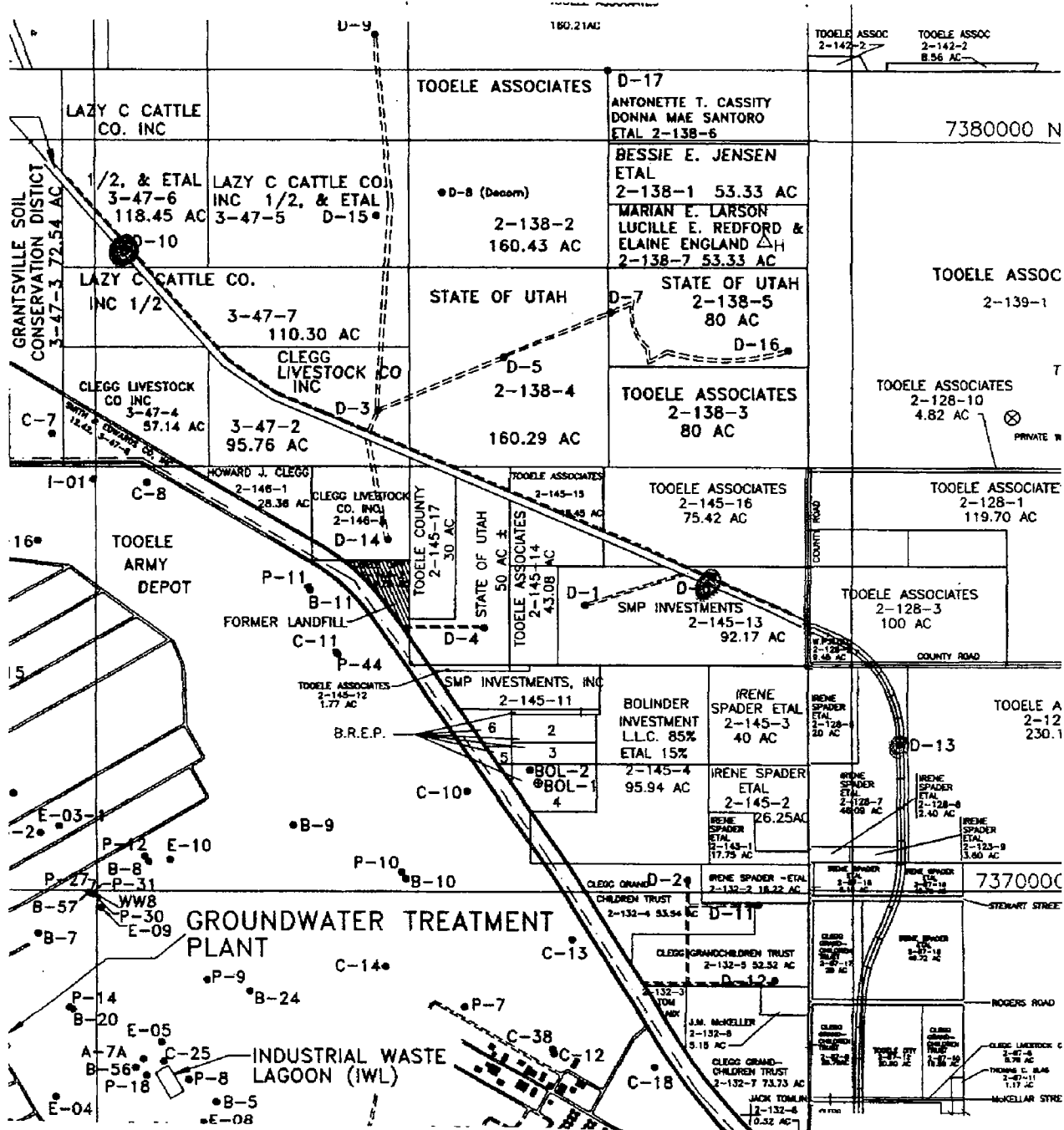
ACCEPTED

UNITED STATES OF AMERICA

By: Marvin D. Fisher

MARVIN D. FISHER
Chief, Real Estate Division
U.S. Army Engineer District, Sacramento

Date: 11/12/03



DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT,
CORPS OF ENGINEERS
AUGUST 2003

TOOELE ARMY DEPOT

UTAH

GROUNDWATER TREATMENT SYSTEM AND MONITORING WELLS - ON AND OFF-SITE PHASE II WELLS SITE MAP

TOOELE ARMY DEPOT, UTAH
Right-of-Entry
Contract No. DACA05-9-03-0018
Amendment No. 1
Exhibit "A-1"

D-13-3

**DIVISION OF WATER RIGHTS
REQUEST FOR NON-PRODUCTION WELL CONSTRUCTION**

(for wells deeper than 30 feet)

Well Type (check one): Provisional () Monitor (X) Cathodic Protection () Heat Exchange ()

Applicants Name: TOOELE ARMY DEPOT

Mailing Address: SIOTE-EO-EO (BLDG 8)

TODELE ARMY DEPOT TODELE, UTAH 84074

Contact Person: MR. LARRY McFARLAND Phone: (435) 833-3504

Proposed Start Date: 08/02/04 Anticipated Completion Date: 12/31/04

Well Drillers License No: 215 Proposed No. of Wells: 10

PROPOSED LOCATION OF WELLS:

County: TOOELE

[illegible]

Use back of form or additional paper if more room is needed

EXPLANATORY: REFER TO ACCOMPANYING TABLE FOR INFORMATION ON PROPOSED
WE45.

Signature of Applicant

Date _____

FOR OFFICE USE ONLY

Date of Request: _____

Approval Date: _____

Approved by: _____ Provisional/Monitor Well No. _____

Water Right Number (if available): _____

LOCATION DATA FOR PROPOSED GROUNDWATER MONITORING WELLS
UTAH INDUSTRIAL DEPOT, TOOELE, UTAH

Well Identifier	-proposed well location-		-referenced section corner-		-well location relative to section corner-		Section Corner	Section	Township	Range	Base	Diameter (inches)	Depth (feet)
	State Plane (northing)	State Plane (easting)	State Plane (northing)	State Plane (easting)	North/South Distance (feet)	East/West Distance (feet)							
C-41	7384702	1407022	7385112	1409429	South 413	West 2406	NE	30	3S	4W	SL	4	390
C-42	7385715	1406276	7385067	1404092	North 649	East 2187	SW	19	3S	4W	SL	4	355
C-43	7387012	1405964	7385067	1404092	North 1946	East 1863	SW	19	3S	4W	SL	4	320
C-44	7367575	1404058	7385067	1404092	North 2507	West 34	SE	24	3S	5W	SL	4	290
C-45	7370246	1405151	7370371	1404071	South 125	East 1076	NW	19	3S	4W	SL	4	310
C-46	7370246	1405151	7370371	1404071	South 125	East 1076	NW	19	3S	4W	SL	4	550
D-12	7367916	1410001	7370415	1409392	South 1731	East 433	NE	19	3S	4W	SL	4	400
D-13	7371871	1410626	7370415	1409392	North 1456	East 1355	SW	17	3S	4W	SL	4	355
D-14	7374293	1403758	7375579	1404047	South 817	West 256	NE	13	3S	5W	SL	4	240
D-16	7377309	1409136	7375667	1409370	North 1644	West 234	SE	7	3S	4W	SL	4	250



OLENE S. WALKER
Governor
GAYLE F. MCKEACHNIE
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

Division of Water Rights

ROBERT L. MORGAN
Executive Director

JERRY D. OLDS
State Engineer/Division Director

TOOELE ARMY DEPOT
SIOTE-EO-EO (BLDG 8)
TOOELE ARMY DEPOT
TOOELE, UT 84074

July 28, 2004

Dear Applicant:

RE: MONITOR WELL#: 0415004M00

Reference is made to your request to drill 10 MONITOR WELL(S). The anticipated drilling depths will exceed the minimum regulated and reporting depth of 30 feet, thereby requiring permission from the Division of Water Rights to proceed with this project.

The specifications outlined in your well project request dated July 28, 2004, meet the State Engineer's requirements and permission is **HEREBY GRANTED**. Therefore, this letter is your authorization to proceed with the construction of the well(s) in accordance with those specifications and with respect to the following provisions:

- 1) Small diameter casing is to be used in the construction of the well(s) and no more water is to be diverted than is necessary to determine the quality of the ground water by obtaining representative samples as required by the project.
- 2) The well(s) must be drilled by a currently licensed Utah driller and must be drilled in a manner consistent with the recommended construction standards cited in the Utah State Administrative Rules for Well Drillers.
- 3) The enclosed Driller (START) Card form must be given to the licensed driller for his submittal prior to commencing well construction. The other enclosed form is the 'Applicant Card.' It is **YOUR RESPONSIBILITY** to sign and return this Applicant Card form to our office upon well completion.
- 4) If complete information is not available in the initial application, it is the **APPLICANT'S RESPONSIBILITY** to provide, upon completion, descriptive locations of the wells referenced by course and distance from established section corners, e.g. North 565 feet and West 1096 feet from the SE corner of Section 35, T2S, R5W, SLB&M.
- 5) At such time as the well(s) are no longer utilized to monitor ground water and the intent of the project is terminated, the well(s) must be temporarily or permanently abandoned in a manner consistent with the Administrative Rules.

NOTE: Please be aware that your permission to proceed with the drilling under this authorization expires January 28, 2005.

Sincerely,

John Mann, P.E.

John Mann, P.E.
Regional Engineer

1394 West North Temple, Suite 220, PO Box 146300, Salt Lake City, UT 84114-6300
telephone (801) 538-7240 • facsimile (801) 538-7467 • www.waterrights.utah.gov

Utah!
Where ideas connect™

APPLICANT CARD for Monitor WELL#: 0415004M00

IMPORTANT: THIS CARD MUST BE COMPLETED, SIGNED AND RETURNED BY THE WELL
OWNER/APPLICANT AS SOON AS THE WELL IS DRILLED BY A LICENSED UTAH WATER
WELL DRILLER.

OWNER/APPLICANT NAME: TOOELE ARMY DEPOT

MAILING ADDRESS: SIOTE-EO-EO (BLDG 8), TOOELE ARMY DEPOT, TOOELE, UT 84074

PHONE NUMBER: 435-833-3504

WELL LOCATION: You are authorized to drill 10 Monitor Wells. SEE BELOW.

WELL UTM COORDINATES:

WELL ACTIVITY: NEW ☒ REPAIR () REPLACE () ABANDON ()
CLEAN () DEEPEN ()

WELL COMPLETION DATE:

NAME OF DRILLING COMPANY/LICENSEE:

Owner/Applicant Signature

Date

***COMPLETE, SIGN AND RETURN THIS PORTION UPON FINAL WELL COMPLETION -

DO NOT GIVE THIS CARD TO LICENSED WELL DRILLER - YOU MUST RETURN IT.

STATE OF UTAH DIVISION OF WATER RIGHTS Phone No. 801-538-7416

Fax No. 801-538-7467

COMMENTS:

MONITOR WELL LOCATIONS:

- (1) N 1644 W 234 from the SE corner, S07 T 3S R 4W SLBM
- (2) N 1456 E 1355 from the SW corner, S17 T 3S R 4W SLBM
- (3) N 649 E 2187 from the SW corner, S19 T 3S R 4W SLBM
- (4) N 1946 E 1863 from the SW corner, S19 T 3S R 4W SLBM
- (5) S 1731 E 433 from the NE corner, S19 T 3S R 4W SLBM
- (6) S 125 E 1076 from the NW corner, S19 T 3S R 4W SLBM
- (7) S 125 E 1076 from the NW corner, S19 T 3S R 4W SLBM
- (8) S 413 W 2406 from the NE corner, S30 T 3S R 4W SLBM
- (9) S 817 W 256 from the NE corner, S13 T 3S R 5W SLBM
- (10) N 2507 W 34 from the SE corner, S24 T 3S R 5W SLBM

AUG

DRILLER (START) CARD for Monitor WELL#: 0415004M00

IMPORTANT: THIS CARD MUST BE RECEIVED BY THE DIVISION OF WATER RIGHTS PRIOR TO
THE BEGINNING OF WELL CONSTRUCTION -- REQUIRED ONLY FOR WELLS DEEPER THAN 30 FT.
OWNER/APPLICANT NAME: TOOELE ARMY DEPOT
MAILING ADDRESS: SIOTE-EO-EO (BLDG 8), TOOELE ARMY DEPOT, TOOELE, UT 84074
PHONE NUMBER: 435-833-3504
WELL LOCATION: You are authorized to drill 10 Monitor Wells. SEE BELOW.
WELL UTM COORDINATES:
WELL ACTIVITY: NEW ☒ REPAIR () REPLACE () ABANDON ()
CLEAN () DEEPEN ()

PROPOSED START DATE: 9-1-04

PROJECTED COMPLETION DATE: 8-1-05

LICENSE #: 625 LICENSEE/COMPANY: Layne Christensen Co.
58 8-29-04

Licensee Signature

Date

NOTICE TO APPLICANT: THIS CARD IS TO BE GIVEN TO A LICENSED UTAH WATER WELL
DRILLER FOR HIS SUBMITTAL PRIOR TO WELL CONSTRUCTION.

STATE OF UTAH DIVISION OF WATER RIGHTS Phone No. 801-538-7416
Fax No. 801-538-7467

MONITOR WELL LOCATIONS:

- (1) N 1644 W 234 from the SE corner, S07 T 3S R 4W SLBM
- (2) N 1456 E 1355 from the SW corner, S17 T 3S R 4W SLBM
- (3) N 649 E 2187 from the SW corner, S19 T 3S R 4W SLBM
- (4) N 1946 E 1863 from the SW corner, S19 T 3S R 4W SLBM
- (5) S 1731 E 433 from the NE corner, S19 T 3S R 4W SLBM
- (6) S 125 E 1076 from the NW corner, S19 T 3S R 4W SLBM
- (7) S 125 E 1076 from the NW corner, S19 T 3S R 4W SLBM
- (8) S 413 W 2406 from the NE corner, S30 T 3S R 4W SLBM
- (9) S 817 W 256 from the NE corner, S13 T 3S R 5W SLBM
- (10) N 2507 W 34 from the SE corner, S24 T 3S R 5W SLBM

T-458 P.08/22 F-299

WELL DRILLER'S REPORT

State of Utah

Division of Water Rights

For additional space, use "Additional Well Data Form" and attach

Well Identification

Non-Production Well: 0415004M00

WIN: 30272

Owner

Note any changes

TOOELE ARMY DEPOT
SIOTE-EO-EO (BLDG 8)
TOOELE ARMY DEPOT
TOOELE, UT 84074

Contact Person/Engineer. Richard Jirik / Parsons

Well Location

Note any changes

N 1456 E 1355 from the SW corner of section 17, Township 3S, Range 4W, SL B&M

Location Description: (address, proximity to buildings, landmarks, ground elevation, local well #) D-13

Drillers Activity

Start Date: 09/01/04

Completion Date: 01/14/05

Check all that apply: ☒ New ☐ Repair ☐ Deepen ☐ Clean ☐ Replace ☐ Public Nature of Use: Monitor Well

If a replacement well, provide location of new well. N/A feet north/south and N/A feet east/west of the existing well.

DEPTH (feet) FROM TO		BOREHOLE DIAMETER (in)	DRILLING METHOD	DRILLING FLUID
0	385	9	Percussion Hammer	N/A

Well Log

[illegible]

Static Water Level

Date 10/12/04 Water Level 354 feet Flowing? ☐ Yes ☒ No
Method of Water Level Measurement WLI If Flowing, Capped Pressure N/A PSI
Point to Which Water Level Measurement was Referenced Ground Level Elevation N/A
Height of Water Level reference point above ground surface N/A feet Temperature N/A degrees ☐ C ☐ F

Well Log

Construction Information

DEPTH (feet)		CASING			DEPTH (feet)		<input checked="" type="checkbox"/> SCREEN	<input type="checkbox"/> PERFORATIONS	<input type="checkbox"/> OPEN BOTTOM
FROM	TO	CASING TYPE AND MATERIAL GRADE	WALL THICK (in)	NOMINAL DIAM. (in)	FROM	TO	SCREEN SLOT SIZE OR PERF SIZE (in)	SCREEN DIAM OR PERF LENGTH (in)	SCREEN TYPE OR NUMBER PERF (per round/interval)
0	364	4" Sch. 40 PVC	40	4	364	384	.010	4	Factory Slo

Well Head Configuration: Above GradeAccess Port Provided? ☒ Yes ☐ NoCasing Joint Type: Flush ThreadPerforator Used: N/AWas a Surface Seal Installed? ☒ Yes ☐ NoDepth of Surface Seal: 352 feetDrive Shoe? ☒ Yes ☐ NoSurface Seal Material Placement Method: Tremie Bentonite Pellets and Bentonite Grout

DEPTH (feet)		SURFACE SEAL / INTERVAL SEAL / FILTER PACK / PACKER INFORMATION		
FROM	TO	SEAL MATERIAL, FILTER PACK and PACKER TYPE and DESCRIPTION	Quantity of Material Used (if applicable)	GROUT DENSITY (lbs./gal., # bag mix, gal/sack etc.)
0	352	Bentonite Grout	93 Bags	50 lbs each
352	361	Bentonite Pellets	4 Buckets	50 lbs each
361	385	16-40 Silica Sand	19 Bags	50 lbs each

Well Development and Well Yield Test Information

DATE	METHOD	YIELD	Units Check One		DRAWDOWN (ft)	TIME PUMPED (hrs & min)
			GPM	CFS		
	N/A					

Pump (Permanent)

Pump Description: N/A Horsepower: _____ Pump Intake Depth: _____ feetApproximate Maximum Pumping Rate: _____ Well Disinfected upon Completion? ☐ Yes ☐ No

Comments

Description of construction activity, additional materials used, problems encountered, extraordinary circumstances, abandonment procedures. Use additional well data form for more space.

N/A

Well Driller Statement

This well was drilled and constructed under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name LAYNE CHRISTENSEN COMPANYLicense No. 626

Signature _____

Date February 4, 2005

(Licensed Well Driller)

APPENDIX B

Wednesday 9/29/04 weather overcast (~40°)
light rain & wind ~ S-10 mph to NW

- 7:03 I arrive at site. Crew is outside. It is just light enough to work.
- 7:15 We have H&S tag gate
- 7:27 I do rig inspection
- 7:32 Begin Drilling D-13 at 40' bgs
- 8:30 Oil hose to head breaks off - threaded fitting broken w head - repair may require easy-out tapping tool. Hole is at 85' bgs
- 9:51 Rig repaired Begin drilling
- 11:56 @ 150' bgs crew breaks for lunch
I go to 614 to get chip trays
- 12:31 Crew fires up rig & adds rod
- 12:42 Drilling at 150' bgs
- 13:24 @ 163' hose comes loose from head
- 13:31 Drilling again
- 14:10 Fuel line on head snaps. Carl Cole outside
- 14:28 Drilling again - cemented layers
- 14:45 Carl leaves site
- 16:37 Hole completed to 210'. Strongly cemented since 204' bgs. Very slow drilling.
Crew fuels compressor & head.
I call Richard with update
- 17:10 All hands off site.

Watt 9/29/04

Thursday 9/30/04

weather: clear ($\sim 30^\circ$)

5 mph breeze to N.W

- 7:05 I arrive at D-12. Crew onsite fueling hammer from pickup
- 7:25 Tom says we must go get another load of diesel from town. I do rig inspection while he is gone
- 8:10 Tom returns and fills rig w/fuel
- 8:20 We have tailgate H's S
- 8:32 Begin drilling @ 210 ft bgs
- 10:10 only 8" since 8:30
- 10:30 Carl Cole onsite. He has maps. He estimates water (Assuming there is no effect like the depressed level of D2) to be around 274' bgs based on D-12 and D-6 levels. We are seeing some moisture on cuttings here that may represent the perched water seen at 258' in D-12.
- 10:50 Carl leaves site
- 12:05 Head is hot! break for lunch @ 214' bgs
- 12:33 Drilling again
- 13:17 220' bgs
- 15:15 @ 254 Carl Cole onsite
- 16:53 260' bgs
- 17:10 All hammers off site

~~W. H. Turner~~ 9/30/04

Friday 10/1/04

Weather clear (40-70°) 10 mph to

- 7:06 I arrive at D-13 crew is onsite fueling rig
- 7:36 Truck tank is empty. Tom must go to town for fuel for compressor. Do rig inspection
- 8:15 Tom calls from town. Gas card won't work. He is waiting to hear from Christian
- 8:40 Tom is back and fills compressor. Tailgate H&S
- 8:02 Compressor won't run right. Clean air filter
- 9:15 Begin drilling @ 260' hrs
- 10:03 Carl Cole onsite
- 12:30 @ 285 - cemented layer - very hard 1" - 1/2 hour. Head is smoking, break for lunch
- 13:03 Begin drilling
- 13:30 Jill Thomas (Parsons) oversight with her husband
- 13:45 Jill leaves site
- 14:10 Jenny (M.P.) onsite. She came to see if tanker truck would fit into road at D-12 which they are developing Monday.
- 15:01 We shut down to let head cool. We have drilled just over 2 feet in 2 hours in strongly cemented fine gravel
- 16:02 @ 288' we shut down. Head is overheating. We are making almost no progress
- 16:10 All hands off site
- 16:40 I speak with Chris Davis. Crew will load today heads and rods Monday morning so they will be late. Jeff Bigelow will be observing development of D-12 and needs water level meter. File box at 7:00 on Monday however Richard Turk call to explain they have decided to "pilot" thru the cemented zone to water and then follow with hammer (9")

~~Walt~~ (unclear) 10/1/04

Monday 10/4/04

weather clear, (45°) slight breeze NW

7:40 I arrive at D-12. Jeff Bigelow onsite with Volia (formerly PSG) water development crew, Jeff Hannmann and Mark Bear. They have taken a water level (339.61) and sounded bottom (365.56). Both are Top of Casing which is 2'6" above ground (surface of concrete pad). Upon trying to bail well they are unable to get the 3 1/2" diameter bailer (6' long) to well bottom. It is getting hung up at 335' approximately where the Bentonite plug is. I call Chris Davis and he allows that they have seen this occur elsewhere and believe it has to do with the swelling of the bentonite causing the casing to bind. (?) We are able to get the 18" surge block to bottom however. Layne will send out a 3" diameter bailer with Tom Kern this morn. In the mean time crew lowers the 3 5/8 inch pump down hole (34" long). It goes to bottom easily. Crew pulls pump so we can bail when the 3" bailer arrives.

10:10 Tom Kern arrives with 3" bailer. It is 10 ft long

$$V = (\pi r^2) \times L = (.25 \text{ ft})^2 \times .785 \times 10 \text{ ft} = 0.49 \text{ ft}^3$$

$$7.48 \text{ gal/ft}^3 \times 0.49 \text{ ft}^3 = 3.66 \text{ gallon}$$

In the 5 gallon bucket it appears to be less. I remeasure the I.D. of the bailer at 2.5"

$$V = (\pi r^2) \times L = (.21 \text{ ft})^2 \times .785 \times 10 \text{ ft} = 0.34 \text{ ft}^3$$

$$7.48 \text{ gal/ft}^3 \times 0.34 \text{ ft}^3 = 2.54 \text{ gallon}$$

10:30 First bailer out is brown & cloudy with trace sand

I drive to D-13 to check progress.

11:05 Tom has fueled rig with what he has and goes to town for more fuel - I go back to D-12

11:40 @ D-13 crew is onsite. They have a new hand Mike Wyatt so I have him read the SSHSP and sign the acceptance form.

11:55 I connect H & S tailgate.

12:10 Crew is pulling a 5' section of 9" pipe so they can add rotary rods. I get drill and well table for D-12

10/4/04 (cont)

from Tom so I can put in weep hole there.
Crew will install rotary head.

13:30 Crew has completed installation of rotary head and begins to trip in 6" rods and hammer bit (downhole). I do rig inspection of the rotary head installation.

15:10 While crew is lowering last rod the pulley at the top of mast became disfunctional - wore a groove in the pin it spins on - Crew shuts down, climbs mast to remove.

15:50 Crew is going to drill down the 10 feet of rod sticking out of the ground to make sure system works. Also the hose won't attach to the cyclone so they attach it in the cyclone top with a whipcheck for the time being.

16:15 To ^{MF} @ 295' - came out of cement at 292' bgs. Tom can add 10 more feet using small cable so we are going to try. Hole is staying open to 295 so far.

16:26 Carl Cole onsite

16:37 305 bgs. Hole is still staying open. We will pull rods up 10 feet and call it a day.

17:05 I drive to D-12 where water well develop crew is pulling the pump from the well. Jeff is locking the tanker as it can't be moved till morning. I drill a weep hole in the steel protector casing and apply the well ID label to the north side of the casing.

17:25 Offsite

~~W. St. Louis~~

Tuesday 10/5/04

weather; clear (40°) slight breeze

7:35 As I arrive at site Jeff Bygelow & Larry Helander ^{to NW} are escorting MP tanker of development water to the 90-Day yard from D-12

8:05 Layne crew arrives at D-13 with a new pulley wheel and pin. Tom greases it up and Nate dons harness and climbs mast to replace Dave Kyle is the 3rd hand today. He fuels rig

8:15 We Have tailgate H & S

9:30 I do rig inspection. Nate is having trouble fitting new wheel in place so Dave also dons harness to go assist. I ask Tom if he has a second fall protection line for Dave. Nate ties off to main mast.

9:00 Carl Cole onsite. crew continues working on shiv wheel

9:05 Nate is now filling head with diesel so perhaps wheel is repaired

9:15 Rethreading cable on spool properly. Carl offsite

9:30 Tom determines hole is caved at 300' and will continue to so we must trip out rotary rods and advance 9" to this depth

10:26 Jeff Bygelow onsite to collect paperwork and go return Drumlacks. Crew continues tripping out of hole

10:50 Rods out of hole, crew is now removing rotary head attachment

11:15 Rotary head is off - Crew must now attach hammer head

11:50 Hammer head attaches. Adding the removed piece of casing - take off 5 footer - and 10 footer

12:05 Drilling 9" back in from 280 to 288

12:11 @ 288 again

12:24 @ 290 so it took 10 min to go 2 ft in the cement with a pilot hole. Carl Cole onsite

12:27 Drilling

13:00 @ 300 Lunch break

13:22 Drilling

14:08 @ 310 Carl leaves site

10/5/04 (cont)

14:12 Drilling @ 300

16:40 331' bgs - Very hard from 330 to 331

Crew shuts down for today

16:58 Offsite. I speak with Carl Cole and Richard. Richard asks if well materials are onsite and he will get Christian to send them out with crew in morning so we are prepared to set well when the time comes.

John Lee 10/5/04

Wednesday 10/6/04

weather: clear (w 45°) no wind

6:30 I arrive at Building 614

6:50 I arrive at D-13

7:35 Crew arrives. They are late because they were loading well construction materials. They begin fueling rig

8:01 Dave goes to town for more fuel while Tom and Nate replace pin on head that allows head to move back and forth over drill pipe. It is worn out. I continue rig inspection

8:25 Dave returns and we have tailgate H & S

8:50 Begin drilling at 331

9:55 Carl Cole onsite

12:11 340' bgs - lunch break

12:56 Begin drilling - Dave Shank onsite

15:40 @ 347' Dave Shank and Carl Cole leave site

16:08 @ 349 the head is smoking. We must let cool so we call it a day

16:33 All hands offsite

Walt Lunt 10/6/04

Thursday 10/7/04

Weather overcast (430°) 20-30

mph gusts to the N-NW

- 7:03 I arrive at D-13. Crew is outside fueling rigs. They must change out or clean air filters on the rig and the onboard compressor. I go to building 614 for chip tray & to unload some samples.
- 8:08 Back at site I do rig inspection 8:20 Begin Drilling
- 8:30 Tom and I discuss how much longer to go on pounding without changing methods. I suggest we see how long this last foot (349 to 350) takes. Carl Cole outside
- 8:40 We have tailgate H & S. while pounding
- 8:55 Carl leaves site
- 9:13 350'
- 10:36 fuel line leaking but ok to tighten & continue Drilling
- 11:20 Carl Cole leaves site
- 11:40 Paul Hubiker (Parsons onsite)
- 11:50 @ 368 first wet rock from cyclone - we shut down to set up drums and secondary containment tank. I phone Carl & Richard
- 12:30 Crew empties drum truck, lifts cyclone, levels ground under tank & takes water level 364.7' bgs. I label drums and open lids
- 13:26 I have Dean Reynolds and M.P. Trucking lined up to move drums at 16:00 as we cannot leave them onsite on Thursdays as T&E employees don't work Friday and 72 hr clock would expire on Sunday for satellite accumulation
- 13:30 Begin Drilling. Typically drilling is easy once in the water table but we are going slowly. I run for cooler, ice & PID
- 13:40 Back at site. Very little penetration. I calibrate PID - 97.8 on 100 ppm isobutylene
- 14:00 370' bgs Carl Cole onsite

10/7/04 (cont)

- 4:20 We are moving so slowly and producing so few cuttings I am hesitant about the scheduled 16:00 pickup by M.P. I call Richard Jurik. He will phone M.P. & TEAD and see how soon we must decide.
- 15:35 @ 373' we have produced 6 drums of cuttings (Many are largely full of water because drilling is very slow but water production is fast) Drums are PARSN20428101 thru 06. We shut down rig and take a water level 353'. Water has come up 11.7' since 12:30. We will move drums to the 90 day and return here for another water level.
- 16:00 MP driver Monte is onsite. We load drums under manifest # PD009. Dean Reynolds (TEAD) signs manifest. We head to 90 day yard.
- 16:25 At 90 day yard we unload drums and Dave Woodworth signs for them.
- 17:05 Tom goes back to D-13 and takes W.L. = 353. (same) I call Carl & Richard with info. We will be unable to work tomorrow as we are unable to generate waste because Dept employees are also off Monday (Columbus Day) so our 72 hr window for satellite 90 day yard would expire.
- 17:15 Jeff Bigelow and I return to 614 to store samples and finish paperwork.
- 17:30 Offsite

~~Walt Hunt 10/7/04~~

Monday October 11, 2004

Weather partly cloudy 30°
NO WIND

- 6:55 I arrive at D-13. No crew onsite. Wino has taken down exclusion zone (Caution Tape and Drums). I rechecked. Can't take a water level as the head of hammer is on top of casing.
- 7:30 Tom calls to say he is loading up drums.
- 8:00 Carl Cole onsite. I calibrate PID (97.6 on 100 ppm)
- 8:30 Tom calls to say he has to stop at Laynes other hammer rig for something in Toole
- 9:00 Nate & Dave arrive with drums
- 9:13 Tom arrives. Begins backing rig. I do rig inspection
- 9:28 We have A&S tailgate
- 9:45 Tom moves head and takes W.L. = 353.0' bgs - unchanged over weekend. I label drums for drilling
- 10:15 Carl Cole onsite
- 10:17 Begin Drilling @ 273'
- 10:25 Having trouble keeping head running
- 11:25 Rg blows a hydraulic line while removing steel of casing to work on hammer. We will be shut down for some time so I am going to SLC to take care of some business - critical
- 14:30 These notes from Carl Cole who is onsite while I am in transit
"@ D-13 Rg starts running
- 14:45 2 drums of water in 1st 4 inches
- 14:50 374 - faster drilling
- 14:55 3 drums
378 - slower again for 2 inches then fast to 380
- 15:08 Rss Down
- 15:11 Drilling Slow @ 382' "
- 15:15 Back onsite. Drilling is very slow and water production is high. I take PID from bags & ice them down
- 16:30 at 383 Carl Cole onsite. 8 drums produced PARSN20428501 Nov 08
- 17:10 385' bgs. We will set well here in a.m. as per Carl Cole
- 17:33 All hammers off site - 2 of them with 11/10/04

Tuesday 10/12/04

weather clear (35°) no wind

7:00 I arrive at building 614

7:20 I arrive at D-13. Crew oversight warming up rig

7:30 We have H&S Topic: lifting well construction material

7:45 I do rig inspection and clean up site to prepare for well construction

7:55 Tom takes water level = 354.4 We had been getting 353 feet yesterday. Perhaps because bit is at bottom and has not been lifted some sealing off is occurring

8:05 crew backs sand truck up to well w/ borehole and begins lowering well casing
400' in 10' sections and 10' in 5' sections of schedule 40 4" PVC onsite (20' of which are 0.010 slotted screen)

8:30 Carl Cole onsite

9:15 Casing has bottomed with 5' above ground and 2-10' sections remaining. Crew raises well casing 1 foot off hole bottom and will suspend while constructing Carl Cole offsite

9:30 Tom is having trouble sounding hole bottom (he is at 345') but casing is moving independent of PVC so they remove 5' of 9"

10:30 Crews has added 6-50 lb bags of 16-40 colorado silica sand and are sounding top of sand at 376' bgs. We will sand from 385 to 362' bgs
Volume calculation for 9" borehole & 4" well annulus

$$[(.75 \text{ ft})^2 \times .785 \times 23 \text{ ft}] - [(.33 \text{ ft})^2 \times .785 \times 23 \text{ ft}]$$

$$10.16 \text{ ft}^3 - 1.97 \text{ ft}^3 = 8.19 \text{ ft}^3$$

Each sand bag is approx. $\frac{1}{2} \text{ ft}^3$ so it should take ~17 bags

11:33 We have added 15 bags and sand is at 362' but we must pull 20 feet of casing to open annulus

11:58 Crew is struggling to get sounder down hole. They break for lunch in frustration. Richard calls I explain crew does not intend to slurry well today so we will also put off primer movement to the

10/12/04 (cont)

90 Day yard until tomorrow

12:50 Crew is back working to finish top of sand

13:06 361.4 feet to top of sand. Crew begins adding bentonite seal using Cetco coaters tablets.

Crew pours tablets into the top of annulus very slowly to prevent bridging

13:30 Carl Cole onsite. Crew has removed casing so that the bit is sitting at 345' bgs

13:40 One call stake center locator is onsite. She is looking for wellsite D-16 to clear for utilities.

Carl Cole is willing to ~~lead~~ a parade to D-16 as I am unaware of its location as well.

I bring Nate Salazar with me as he can be the Drill crew member who knows well location

14:02 At D-16 we are given utility clearance. We return to D-13

14:19 At D-13 Tom has added 4 buckets of pellets and sounds top of seal at 352'

90% of seal is below water (if not all) so there is no need to hydrate

Volume calculation - The hole volume per foot of hole (annulus only) is

$$\left[(.75 \text{ ft})^2 \times .785 \times 1 \text{ foot} \right] - \left[(.336 \text{ ft})^2 \times .785 \times 1 \text{ ft} \right]$$

$$= 0.44 - 0.09$$

$$= 0.35 \text{ ft}^3$$

The cetco manufactures table states 28.25 pounds of tablets are needed to fill 1 linear ft with this calculated volume therefore

we have filler 361.4 - 35.2 = 9.4 linear ft

This should take 5.3 buckets but we used only 4 indicating some casing occurred but this is difficult to control as setting pellets in bit on hole bottom & then lifting casing is likely to cause bridging which is to be avoided at all costs

15:30 Crew has loaded trash (casing boxes etc) on truck and we all leave site. Will greet well in the a.m.

Matt Lawrence

Wednesday 10/13/04

weather clear (~35°)

6:45 I arrive at building 619

slight breeze to N.W

7:05 I arrive at D-13

7:23 Crew arrives with 2 vehicles - one loaded with 3 pallets of Pure Gold bentonite grout. While they secure remaining sand & warm up rigs I do rig inspection.

8:05 We have tailgate H: S - topic respiratory hazards of powdered bentonite

8:20 I call Gary Porter (TEAD Utilities) to have Gary Polaski meet us at Water Well 3 for water to grout - he says 20 min

8:35 We take all 3 trucks that are able to carry water so we don't have to come back.

9:00 Still no sign of Gary - I call back - he says he forgot to call

9:15 Gary Polaski arrives & we fill trucks

10:05 Back at site. Crew sets up grout plant and I change out locking bolts on full haz-waste drums because Jeff Bigelow has arranged to have them picked up by M.P. at 16:00 and transported to the 90 day yard. We take Water Level = 353.2

10:50 Crew begins mixing grout w a 55 gallon drum which is plumbed into a pump. Crew batches 2 - 50 lb bags of Pure Gold Bentonite Powder with 28 gallons of water which produces mud with 30% solids with a weight of 10-10.2 lbs/gallon which will fill ~~2.4~~ cubic feet. As calculated (p48) each foot of annulus is 0.35 ft^3 so to fill 352 feet

$$2 \text{ bags} = 4.4 \text{ cubic feet}$$

$$4.4 / 0.35 \text{ ft}^3/\text{ft} = 12.57 \text{ linear feet of annulus / 2 bags}$$

$$352 / 12.57 = 28.0 \times 2 = 56 \text{ bags}$$

This assumes the diameter is 9" but likely is larger in places as well as any that seeps into the formation so 56 should be a minimum

11:30 20 bags mixed - and slurry is near surface so crew begins pulling casing

10/13/04 (cont)

- 11:50 30' of casing out of hole. Crew stops work to remove handle for rotary hammer to avoid overpressuring hydraulic system that ruptured earlier in week.
- 12:02 Crew pulling casing again.
- 13:10 Dave Shank and Jev Cowan outside
- 13:30 Ed stays outside, Larry McFarlane outside
- 15:33 Ed notices MP Truck has arrived at Rodgers Road 1/2 hour early. I check with Tom to see that Nate & I could go unload drums and He and Dave could finish grouting. They have only 3-10' section of pipe left in hole so he says o.k.

We drive Drum Truck to road.

- 16:00 Dave Shank & Larry McFarlane direct traffic. MP driver Joe ~~Shank~~^{loads} ~~unloads~~ drums once we set them on liftgate with boom.
- 16:05 Dean Reynolds outside to sign manifest at 90 Day yard. Larry signs as Generator
- 16:15 Truck is placarded and loaded. We head to Tooele 90 Day yard. Manifest # P4010 Load Ticket # V517877
- 17:10 Drums unloaded on pallets. Dean Reynolds signs as Facility owner. I stay to wash outside of drums.
- 17:20 Tom calls. Well slurred w/ grout to surface 93 bags.
- 17:30 90 Day yard secured. Tom leaves lifting bail on well and secures with chain and lock at D-13
- 17:40 All hands off site. We agree to start at 8:00 tomorrow

W. J. [unclear] 10/14/58

Thursday 10/14/04

clear (~40°) light breeze to N

- 7:55 I arrive at D-13 and check slurry. It is about 20 feet bgs
- 8:25 Crew arrives and we have H & S tailgate
- 8:40 Crew sets up gravel plant & I do rig inspection
- 9:05 I head over to building 614 for some forms while crew mixes mud
- 9:20 Jeff Bigelow arrives at 614 from 90 Day yard and I turn over paperwork from this week
- 9:45 I meet Carl Cole at D-12 where we replace the ring around top of well that broke off to. It was broken during development last week.
- 10:30 I head to 90 Day yard with crew to decoo rig and both pipe trucks and pipe. Well has slurry to 5 feet bgs which requires 3 additional bags. Computed volume was 56 bags so ^{roughly} ~~well~~ consumed an additional 40% about
- 12:40 Crew has decooed rig and first pipe truck. They must deliver pipe truck to another layne hammer drill near the Tooele city landfill and pick up there a generator to run pump to empty Decoo pad sump into Baker tank also will eat lunch on way back
- 13:30 Back at 90 Day yard - Richard Jurik calls and suggests we cement in surface protection first thing tomorrow and begin drilling D-6 while the weather is good and save bollard and pad construction for down time activity.
- 14:15 Tom and I mob drill to D-16 site
- 15:20 Tom and I arrive back at D-13 where Dave is cleaning up site. Tom & Dave mix cement and pour into annulus so there is something to set casing on. Cement to 3 ft bgs. I head back to 90-Day yard
- 15:40 Nate is filling steam cleaner with water to Decoo second pipe truck
- 16:10 Tom & Dave arrive at 90-Day. Nate is cleaning

10/14/04 (cont)

pipe truck & pipe. Tom and Dave set
up sump pump and generator and
start pumping sump.

16:30 Crew switches from electric pump to sump
trash pump for more volume

17:05 Sump is dry. I pickup all debris and lock
90 Day yard

17:20 All hands offsite

Walt Law
10/14/04

10/15/64 Friday

clear (450) no wind

7:45 Tom calls to say they will be outside by 8:00
I was planning on showing around 10:00 but he
says they need access to 90 Day yard to get
boom truck to set well protector so I take
off (They have no 90-Day yard key)

8:55 I arrive at 90-Day yard. Crew has waded there
for me (?).

Nate gets pipe truck, Dave gets boom truck and
we proceed to D-13

9:30 Crew has to hand dig cobble out of hole to get
the 10" diameter protector in the 9" hole.
They also load up drums and materials on
pallets and generally clean up site. I run to
town for gas

10:30 Back at D-13. Crew is mixing concrete for
well protector. Dave must run to town for new bit.
Carl Cole onsite. He has a lock for this well.
Richard call and asks that I go get water
levels from C-19 and C-21.

10:50 C-19 = 348.51' TOC

11:03 C-21 = 361.56' TOC

11:21 I go to D-13. No one outside. Drum and
rod truck are gone. I go to D-16.

12:10 @ D-16. Tom and Nate are setting rig up on
plastic

12:30 Dave arrives with bit. Tom takes off
for compressor 13:10 H.S. Tailgate

13:30 Crew is making minor rig repairs and filling fluids

14:00 Crew is attaching bit to 9" pipe

14:04 Begin drilling D-16

14:40 Carl Cole onsite ~ 30 ft

15:20 Carl leaves site - he will put lock on D-13

16:30 D-16 drilled to 110' bgs. Crew fuels rig with what's
left in truck and does some minor maintenance

16:45 All hands off site

~~10/15/64~~

FIELD ACTIVITY REPORT

Project Number/WBS: 744139/20010 Date: 9/28/09

SWMU: 58 Arrival Time: 9:45

Team Leader: Richard Turk Departure Time \ Destination: 17:10

Team Members: Math, Wans, Jeff, B, G, W Weather: partly cloudy 50-75 15-30 windy to SE

- Purpose:** (Attach all appropriate forms)
- | | |
|---|---|
| <input type="checkbox"/> Geophysical Survey
<input type="checkbox"/> Soil Gas Survey
<input type="checkbox"/> Hydropunch
<input type="checkbox"/> Test Pit
<input type="checkbox"/> GPS
<input type="checkbox"/> CPT
<input type="checkbox"/> Other (specify) _____ | <input checked="" type="checkbox"/> Well Installation <u>D-13</u>
<input type="checkbox"/> Well Development _____
<input type="checkbox"/> Microwell Sampling
<input type="checkbox"/> Monitor Well Sampling
<input type="checkbox"/> Vertical Boring
<input type="checkbox"/> Angle Boring
<input type="checkbox"/> Hand Auger
<input type="checkbox"/> Surface Soil Sampling |
|---|---|

Protection Level: ☒ D ☐ C ☐ B ☐ A

Health and Safety Briefing: Time 14:30 People Present TK, DK, WI

Topics Discussed: rotary head hazards

Logbook Book # <u>B041503</u> Page # <u>35</u>	M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology
---	---

Photos Camera # _____ Roll # _____ Frame # _____

IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____

Closed?: Y / N Current Location: _____ Update DITF?: Y / N

Notes: 9:45 Arrive at site - wait for crew with
newly fitted rotary attachment for Becker
Hammer 14:05 Crew arrives 15:45 Begin
Drilling D-13 17:10 D-13 complete to 40' bgs
Offsite

THIS FIELD ACTIVITY
 REPORT WAS PREPARED
 FOR 9/28/09

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>9/29/04</u>			
SWMU: <u>58</u>		Arrival Time: <u>7:03</u>			
Team Leader: <u>Richard Jurik</u>		Departure Time \ Destination: <u>17:10</u>			
Team Members: <u>Matt Ivers Jeff Begeer</u>		Weather: <u>overcast (40°)</u> <u>slight rain</u> <u>10 mph wind</u> <u>To the NW</u> <u>AM To the SE PM 20 mph</u>			
Purpose: (Attach all appropriate forms) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____ </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling </td> </tr> </table>				<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling				
Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A					
Health and Safety Briefing: Time <u>7:15</u> People Present <u>T.K.N.S, D.K, MI</u>					
Topics Discussed: <u>Slippery surfaces,</u>					
Logbook Book # <u>B071503</u> Page # <u>36</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology			
Photos Camera # _____ Roll # _____ Frame # _____					
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____					
Closed?: Y / N		Current Location: _____ Update DITF?: Y / N			
Notes: <u>7:03 Arrive at site 7:15 H's S tailgate 7:27 rig inspection 7:32 Begin drilling @ 40' 8:30 @ 85' oil hose to head breaks off wide head 9:51 Rig repaired, drilling again 11:56 lunch 12:42 Drilling @ 150' 13:24 Hose comes loose on head 14:10 Fuel line snaps 16:33 210' bgs very hard cemented layer since 207, very slow drilling 17:10 off site</u>					

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744189/20010</u>		Date: <u>9/30/09</u>			
SWMU: <u>58</u>		Arrival Time: <u>7:05</u>			
Team Leader: <u>Richard Turk</u>		Departure Time / Destination: <u>17:10</u>			
Team Members: <u>Matt Lucas, Jeff Bigelow</u> Weather: <u>clear (~30°) 5 mph to NW</u>					
Purpose: (Attach all appropriate forms) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____ </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling </td> </tr> </table>				<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling				
Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A					
Health and Safety Briefing: Time <u>8:20</u> People Present <u>T.K., N.S., D.K., MI</u>					
Topics Discussed: <u>Cyclone respiratory hazards</u>					
Logbook Book # <u>B071503</u> Page # <u>37</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology			
Photos Camera # _____ Roll # _____ Frame # _____					
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____					
Closed?: Y / N		Current Location: _____			
Update DITF?: Y / N					
Notes: <u>7:05 arrive at site 8:25 Rig inspection 8:20 H&S tailgate</u>					
<u>8:32 Begin drilling @ 210 ft 10:16 210' + 8" - cemented</u>					
<u>and hard 12:05 Cool head 214' bgs 12:33 Drilling again 15:20 Fuel</u>					
<u>line break 16:00 Drilling again 16:53 260' bgs no water yet</u>					
<u>17:10 off site</u>					

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>10/1/04</u>			
SWMU: <u>58</u>		Arrival Time: <u>7:06</u>			
Team Leader: <u>Richard Jurrik</u>		Departure Time \ Destination: <u>16:10</u>			
Team Members: <u>Jeff Bigelow, Matt Hers</u>		Weather: <u>clear (40-70°) 10 mph winds to S</u>			
Purpose: (Attach all appropriate forms) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____ </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling </td> </tr> </table>				<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling				
Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A					
Health and Safety Briefing: Time <u>8:45</u> People Present <u>TK, NS, DK, MT</u>					
Topics Discussed: <u>PPE</u>					
Logbook Book # <u>B071503</u> Page # <u>38</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology			
Photos Camera # _____ Roll # _____ Frame # _____					
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____ Closed?: Y / N Current Location: _____ Update DITF?: Y / N					
Notes: <u>7:06 Arrive at D-13 crew has to go to town for more fuel. 9:00 Compressor running poorly - clean air filter 9:15 Begin drilling @ 260 12:30 285' - cemented very slow penetration 13:30 Jill Thomas onsite R110 MP (Jenny) onsite 16:02 288' We are done for today. Will discuss rotary hammer option with Richard & Christian. 16:10 Offsite</u>					

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>10/14/04</u>	
SWMU: <u>58</u>		Arrival Time: <u>7:40</u>	
Team Leader: <u>Richard Junk</u>		Departure Time \ Destination: <u>17:25</u>	
Team Members: <u>Teff Byelow, Matt Luers</u>		Weather: <u>clear (~45°) breeze to NW</u>	

Purpose: (Attach all appropriate forms)	
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling

Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A
Health and Safety Briefing: Time <u>11:55</u> People Present <u>T.K., N.S., M.W., M.I.</u>
Topics Discussed: <u>Rotary Attachment Hazards</u>

Logbook Book # <u>B071503</u> Page # <u>39, 40</u>	M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology
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Photos Camera # _____ Roll # _____ Frame # _____

IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____
Closed?: Y / N Current Location: _____ Update DITF?: Y / N

Notes: 7:40 Arrive at D-12. Jeff Byelow & Veolia (PSG) crew is onsite to develop well. 10:10 Tom Kern arrives with 3" bailor for Veolia crew 11:40 New Layne crew member Mike Wyatt reads SSHP and signs acceptance form 11:55 Tailgate H&S 12:10 Crew begins attaching rotary head 13:30 Crew begins tripping in 6" hammer and rods 15:10 Rods down to bottom. Main pulley seizes. Crew can add rods with small cable & Replace wheel in morning 16:37 Down to 305 with 6" 17:05 at D-12 1 drill weephole & bble well 17:25 offsite

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>10/6/04</u>
SWMU: <u>58</u>		Arrival Time: <u>6:30</u>
Team Leader: <u>Richard Turk</u>		Departure Time / Destination: _____
Team Members: <u>Jeff Bigelow, Matt Wiers</u>		Weather: <u>clear (~45°) no wind</u>

Purpose: (Attach all appropriate forms)	
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling

Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A
Health and Safety Briefing: Time <u>8:40</u> People Present <u>TK, NS, DK, MI</u>
Topics Discussed: <u>Cyclohex respiratory hazards</u>

Logbook Book # <u>B071503</u> Page # <u>43</u>	M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology
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Photos Camera # _____ Roll # _____ Frame # _____

IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____
Closed?: Y / N Current Location: _____ Update DITF?: Y / N

Notes: <u>6:30 Arrive at 614 6:50 Arrive at D-13 7:35 Crew arrives having loaded well construction materials 8:01 Dave goes to town for more fuel. Note: Tom replace pin on head. 1 DO rig inspection 8:35 Tailgate H&S 9:50 Begin drilling at 331 12:11 340' lunch break 12:56 Begin Drilling Dave Shank over 15:41 @ 347' Dave Shank and Carl Cole leave site 16:08 349' Horn is smoking - hot we must let cool 16:33 All hands off site</u>

FIELD ACTIVITY REPORT

Project Number/WBS: 744139/20010

Date: 10/7/04

SWMU: 58

Arrival Time: 7:03

Team Leader: Richard Junk

Departure Time \ Destination: 17:30

Team Members: Jeff Bigelow, Matt Voss Weather: overcast (~30°) 20-30 mph gusts to N-NW

Purpose: (Attach all appropriate forms)

- ☐ Geophysical Survey
- ☐ Soil Gas Survey
- ☐ Hydropunch
- ☐ Test Pit
- ☐ GPS
- ☐ CPT
- ☐ Other (specify) _____

- ☒ Well Installation D-13
- ☐ Well Development _____
- ☐ Microwell Sampling
- ☐ Monitor Well Sampling
- ☐ Vertical Boring
- ☐ Angle Boring
- ☐ Hand Auger
- ☐ Surface Soil Sampling

Protection Level: ☐ D ☐ C ☐ B ☐ A

Health and Safety Briefing: Time 8:40 People Present T.K. D.K. M.W. M.E.C.C.

Topics Discussed: Staying alert under extremely boring conditions

Logbook Book # B 071503
Page # 44

M/C Parties ☐ TEU Response ☐ Lockheed Monitoring
Notified ☐ Range Control/Security (460)
☐ Pillbox Support ☐ Meteorology

Photos Camera # _____ Roll # _____ Frame # _____

IDW Drums: Purge / Rinse / Soil / Other #ES(s)

Closed?: Y / N

Current Location:

Update DITF?: Y / N

Notes: 7:03 Arrive at D-13 - crew is doing maint. Drive to Bld 614

8:08 Back at D-13 Do vug inspection 8:20 Drilling at 349

8:40 Tailgate H&S 9:13 350 11:40 Paul Hubkee oversight

11:50 368 - first well rock - we shut down & set up drums &

contained & at 12:26 Lable drums & set up to contain

13:30 Begin Drilling 15:35 373' We must now move has

waste to 90 Day yard - 6 drums (ID PARSN20428101-06)

Water level risen to 253' bgs 16:25 Drums unloaded (# PD009)

17:05 D-13 water level still 353. 17:15 Building 614 17:30 Offsite

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>10/11/04</u>			
SWMU: <u>58</u>		Arrival Time: <u>6:55</u>			
Team Leader: <u>Richard Jurik</u>		Departure Time / Destination: <u>7:33</u>			
Team Members: <u>Jeff Bigelow M. Ivics</u>		Weather: <u>partly cloudy 30° no wind</u>			
Purpose: (Attach all appropriate forms) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____ </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling </td> </tr> </table>				<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling				
Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A					
Health and Safety Briefing: Time <u>8:28</u> People Present <u>T.K, DK, NS, MI</u>					
Topics Discussed: <u>PPE for saturated zone</u>					
Logbook Book # <u>B071503</u> Page # <u>46</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology			
Photos Camera # _____ Roll # _____ Frame # _____					
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____					
Closed?: Y / N _____		Current Location: _____ Update DITF?: Y / N _____			
Notes: <u>6:55 Arrive at site 9:00 Note: Dave arrive 9:13 Tom arrives</u> <u>9:28 H & S tailgate 9:45 W.L. = 353.0 bgs 10:17 Begin drilling @ 373'</u> <u>Head won't run 11:25 Bkw hydraulic line 14:30 Begin drilling @ 373'</u> <u>17:10 385' bgs - about 31' of water column. Because of extreme</u> <u>slow drilling it is decided to set well here. 8 drums Haz-waste</u> <u>produced (PARSN20428501 thru 08). Drums locked aside</u> <u>We will set well in A.M. 17:33 All hands off site</u>					

FIELD ACTIVITY REPORT

Project Number/WBS: 744139/20010

Date: 10/12/09

SWMU: 58

Arrival Time: 7:00

Team Leader: Richard Jurik

Departure Time \ Destination: 15:30

Team Members: Jeff Bigelow, Matt Lucas Weather: clear (~35°) no wind

Purpose: (Attach all appropriate forms)

- ☐ Geophysical Survey
- ☐ Soil Gas Survey
- ☐ Hydropunch
- ☐ Test Pit
- ☐ GPS
- ☐ CPT
- ☐ Other (specify) _____

- ☒ Well Installation D-13
- ☐ Well Development _____
- ☐ Microwell Sampling
- ☐ Monitor Well Sampling
- ☐ Vertical Boring
- ☐ Angle Boring
- ☐ Hand Auger
- ☐ Surface Soil Sampling

Protection Level: ☒ D ☐ C ☐ B ☐ A

Health and Safety Briefing: Time 7:30 People Present T.K., D.K., N.S., M.I.

Topics Discussed: Lifting sand bags

Logbook Book # B071503
Page # 47 + 48

M/C Parties ☐ TEU Response ☐ Lockheed Monitoring
Notified ☐ Range Control/Security (460)
☐ Pillbox Support ☐ Meteorology

Photos Camera # _____ Roll # _____ Frame # _____

IDW Drums: Purge / Rinse / Soil / Other #ES(s)

Closed?: Y / N

Current Location:

Update DITF?: Y / N

Notes: 7:00 Arrive at site 7:30 H&S tailgate 7:45 rig inspection
7:55 W.L. = 354.4 8:05 Crew lowers well casing into borehole
9:15 Casing installed to 385' - lift to 384 and begin adding sandpack
11:33 Top of sand at 362 - 15 bags - calculated volume is 17 bags.
13:06 Top of sand final 361.4 Begin adding bentonite seal 14:19 Top
of seal 352.0 ft bgs - 4.5 gal buckets - calculated volume was 5.3 buckets
15:30 All hands off site

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139-20010</u>		Date: <u>10/13/04</u>			
SWMU: <u>58</u>		Arrival Time: <u>6:45</u>			
Team Leader: <u>Rickie Jurik</u>		Departure Time / Destination: <u>17:30</u>			
Team Members: <u>Jeff BegeLOW, Matt Wers</u>		Weather: <u>clear (2350) slight breeze N.W</u>			
Purpose: (Attach all appropriate forms) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____ </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling </td> </tr> </table>				<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling				
Protection Level: <input type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A					
Health and Safety Briefing: Time <u>8:05</u> People Present <u>TK, DK, NS, MI</u>					
Topics Discussed: <u>Bentone Respiratory Hazard</u>					
Logbook Book # <u>DD71503</u> Page # <u>49, 50</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology			
Photos Camera # _____ Roll # _____ Frame # _____					
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____					
Closed?: Y / N		Current Location: _____ Update DITF?: Y / N			
Notes: <u>6:45 Arrive at 614 7:05 Arrive at D-13 7:23 Crew</u> <u>arrives 8:05 Tailgate H&S 8:20 Go to WN3 for water</u> <u>with 3 trucks 9:15 Gary Polack arrives 10:05 Back at D-13</u> <u>set up grout plant 10:50 Mixing Grout 13:10 Pave Shank, Jen Cowan</u> <u>Larry McFarland, Ed Stays outside 15:33 MP arrives for drums</u> <u>17:10 Drums unloaded in 90-Day (8 Drums - PARS NZ0428501-08)</u> <u>17:20 D-13 slurried to surface 93-50lb bags 17:30 Offsite</u>					

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>10/14/04</u>			
SWMU: <u>58</u>		Arrival Time: <u>7:55</u>			
Team Leader: <u>Richard Jurik</u>		Departure Time \ Destination: <u>17:20</u>			
Team Members: <u>Jeff Bigelow, Matt Ivers</u>		Weather: <u>Clear (~40°) light breeze N</u>			
Purpose: (Attach all appropriate forms) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____ </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling </td> </tr> </table>				<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling				
Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A					
Health and Safety Briefing: Time <u>8:25</u> People Present <u>T.K., D.K., N.S., M.I.</u>					
Topics Discussed: <u>Steam Cleaner Hazards</u>					
Logbook Book # <u>B071503</u> Page # <u>51, 52</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology			
Photos Camera # _____ Roll # _____ Frame # _____					
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____					
Closed?: Y / N		Current Location: _____ Update DITF?: Y / N			
Notes: <u>7:55 Arrive at D-13 & check slurry ~20 ft bsg</u> <u>8:20 Crew arrives 8:25 H&S tailgate 8:40 Crew set up to top off slurry</u> <u>I do rig inspection 9:20 Meet Bigelow at G14 9:45 Meet Carl Cole</u> <u>at D-12 to replace top broken by developers 10:30 Head to 90-Day</u> <u>yard to Decou Ring & pipe 12:30 Rig and first pipe-truck decou</u> <u>14:15 Mob rig to D-16 15:20 fill annulus from 5' to 3' bgs</u> <u>with concrete to foot 10" protector on tomorrow 15:40 @ 90-day</u> <u>Nate Decou 2nd pipe truck 16:10 Set up to pump sump</u> <u>17:05 Sump is dry 17:20 Secure 90 Day yard & leave site</u>					

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>10/15/04</u>	
SWMU: <u>58</u>		Arrival Time: <u>8:55</u>	
Team Leader: <u>Richard Ivank</u>		Departure Time \ Destination: <u>16:45</u>	
Team Members: <u>Jeff Bigelow Matt Ivank</u>		Weather: <u>Clear (145°) no wind</u>	

Purpose: (Attach all appropriate forms)	
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-16, D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling

Protection Level: ☐ D ☐ C ☐ B ☐ A

Health and Safety Briefing: Time 13:10 People Present TK, DK, NS, MI

Topics Discussed: Vehicle Safety

Logbook Book # <u>B071503</u> Page # <u>53</u>	M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology
---	---

Photos Camera # _____ Roll # _____ Frame # _____

IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____

Closed?: Y / N _____ Current Location: _____ Update DITF?: Y / N _____

Notes: 8:55 arrive at 90 Day to unlock for crew to move
drum truck & pipe truck 9:30 Crew digs out cable to get
well protection over D-13 10:30 Mixing concrete to fill
borehole to surface and cement in casing 10:50 Take W.L.'s for
Richard C-19: 348.51 11:03 C-21: 361.56 12:10 Drum truck
and pipe truck @ D-16 Crew is setting rig on plastic
12:30 Tom goes to mob compressor 13:30 Crew makes some rig
repairs and maintenance 14:04 Begun drilling D-16 16:20 110' bgs
16:45 All hands offsite

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>10-19-04</u>			
SWMU: <u>S8</u>		Arrival Time: <u>07:45</u>			
Team Leader: <u>J. Bigelow</u>		Departure Time / Destination: <u>18:30</u>			
Team Members: <u>J. Hanman</u>		Weather: <u>cloudy, rain, ^{40-50°F} high winds</u>			
Purpose: (Attach all appropriate forms) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____ </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Well Installation <input checked="" type="checkbox"/> Well Development <u>P-13</u> <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling </td> </tr> </table>				<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input type="checkbox"/> Well Installation <input checked="" type="checkbox"/> Well Development <u>P-13</u> <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input type="checkbox"/> Well Installation <input checked="" type="checkbox"/> Well Development <u>P-13</u> <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling				
Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A					
Health and Safety Briefing: Time <u>08:15</u> People Present <u>see above</u> Topics Discussed: <u>slippery surfaces, high wind</u>					
Logbook Book # <u>1</u> Page # <u>35</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology			
Photos Camera # _____ Roll # _____ Frame # _____					
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____ Closed?: Y / N Current Location: _____ Update DITF?: Y / N					
Notes: <u>07:45 Arrive on-site 08:00 MP arrives</u> <u>w/ tanker on-site</u> <u>08:15 PS6 arrives on-site, I w have to help</u> <u>them develop well because they only could</u> <u>spare one person today</u> <u>09:00 Start bailing, bailed 105 gallons</u> <u>14:30 Started pumping, pumped 560 gallons</u> <u>18:30 Left site, will continue development</u> <u>tomorrow</u>					

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/2000</u> Date: <u>10-20-04</u>	
SWMU: <u>58 TEAP</u>	Arrival Time: <u>07:45</u>
Team Leader: <u>J. Bigelow</u>	Departure Time \ Destination: _____
Team Members: <u>J. Henman, &c,</u>	Weather: <u>Rainy, 50°F, windy</u>

Purpose: (Attach all appropriate forms)	
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input type="checkbox"/> Well Installation <input checked="" type="checkbox"/> Well Development <u>D-13</u> <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling

Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A
Health and Safety Briefing: Time <u>08:15</u> People Present <u>see above</u> Topics Discussed: <u>slippery surfaces</u>

Logbook Book # <u>1</u> Page # <u>36-37</u>	M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology
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Photos Camera # _____ Roll # _____ Frame # _____

IDW Drums: <u>Purge</u> / Rinse / Soil / Other #ES(s) <u>PARSIN20424301 → 2601</u> Closed?: <u>(Y)N</u> Current Location: <u>90-day yard</u> Update DITF?: <u>(Y)N</u>
Notes: <u>07:50 Arrive on-site, lots of rain and wind</u> <u>08:10 veolia ser. water arrives to finish developing D-13 11:45 Finish developing + leave site</u> <u>13:00 Return to site to transfer water to 90-day yard, lots of trouble getting tanker out of dirt on road but get to 90-day yard ~15:00</u> <u>15:30 Skim water off D-13 down + pump ~1300 gallons into Baker Tank at 90 day yard 16:45 Do GPS of first station</u>

FIELD ACTIVITY REPORT

Project Number/WBS: <u>744139/20010</u>		Date: <u>10/25/04</u>			
SWMU: <u>58</u>		Arrival Time: <u>7:50</u>			
Team Leader: <u>Richard Jurick</u>		Departure Time / Destination: <u>16:15</u>			
Team Members: <u>Jeff Bigelow, Matt Wers</u>		Weather: <u>snow & rain (~30°) no wind</u>			
Purpose: (Attach all appropriate forms) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____ </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling </td> </tr> </table>				<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling
<input type="checkbox"/> Geophysical Survey <input type="checkbox"/> Soil Gas Survey <input type="checkbox"/> Hydropunch <input type="checkbox"/> Test Pit <input type="checkbox"/> GPS <input type="checkbox"/> CPT <input type="checkbox"/> Other (specify) _____	<input checked="" type="checkbox"/> Well Installation <u>D-13</u> <input type="checkbox"/> Well Development _____ <input type="checkbox"/> Microwell Sampling <input type="checkbox"/> Monitor Well Sampling <input type="checkbox"/> Vertical Boring <input type="checkbox"/> Angle Boring <input type="checkbox"/> Hand Auger <input type="checkbox"/> Surface Soil Sampling				
Protection Level: <input checked="" type="checkbox"/> D <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> A					
Health and Safety Briefing: Time <u>11:28</u> People Present <u>TK, DK, NS, ME</u>					
Topics Discussed: <u>Climbing harness safety</u>					
Logbook Book # <u>B071503</u> Page # <u>61</u>		M/C Parties <input type="checkbox"/> TEU Response <input type="checkbox"/> Lockheed Monitoring Notified <input type="checkbox"/> Range Control/Security (460) <input type="checkbox"/> Pillbox Support <input type="checkbox"/> Meteorology			
Photos Camera # _____ Roll # _____ Frame # _____					
IDW Drums: Purge / Rinse / Soil / Other #ES(s) _____					
Closed?: Y / N		Current Location: _____ Update DITF?: Y / N			
Notes: <u>7:50 Arrive at site 8:04 Crew arrives and we mob to</u> <u>Water Well 3 8:50 Polaski arrives to deliver water 10:04 Water</u> <u>truck stuck going in - use D41 to pull it to D-16 11:15 Crew</u> <u>was set up grout plant for inspection 11:28 H&S tailgate 11:40</u> <u>Began grouting 13:15 With 150 feet of 9" out of hole cable comes off</u> <u>spool 13:30 grouting again 14:11 bit out of hole 14:30 grout to surface</u> <u>56 bags - calculated volume 34 bags 14:45 Haul pipetruck to upgrade with D-4</u> <u>catalpiller 15:40 Nate takes pipe truck to 90 day to decon. Dave drives</u> <u>2nd pipe truck to gate at Sheep Lane 16:15 I leave site</u>					

HEALTH AND SAFETY BRIEFING

Date: 9 / 28 / 04

Time: 14:30

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. <i>[Signature]</i>	11.
2. <i>[Signature]</i>	12.
3. <i>[Signature]</i>	13.
4.	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. Discussion of new hazards associated
2. with rotary attachment
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

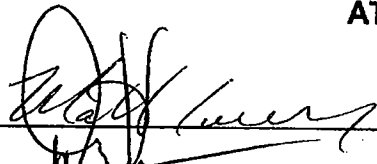
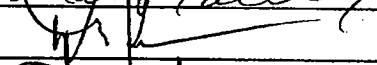
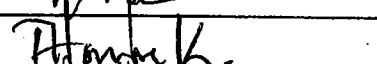
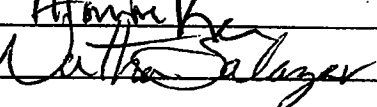
HEALTH AND SAFETY BRIEFING

Date: 9 129 104

Time: 7:15

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. 	11.
2. 	12.
3. 	13.
4. 	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. Intermittent rain will make working
2. surface slippery. Walk carefully and
3. deliberately. Be very careful on pipe
4. truck and other metal surfaces
- 5.
- 6.
- 7.
- 8.
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

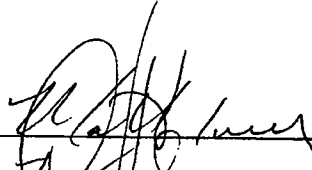
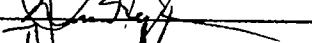
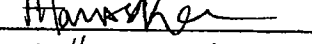

HEALTH AND SAFETY BRIEFING

Date: 9 / 30 / 04

Time: 8:20

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. 	11.
2. 	12.
3. 	13.
4. 	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. In these silty gravels the dust emanating
2. from the cyclone is likely pm 10 which
3. can be inhaled but not exhaled from
4. the lungs due to its particle size. This
5. could over the long run result in silicosis
6. (consumption) or emphysema. Stand upwind,
7. use a dust mask and avoid inhaling
8. while around cyclone
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

HEALTH AND SAFETY BRIEFING

Date: 10 / 1 / 04

Time: 8:45

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. <i>[Signature]</i>	11.
2. <i>[Signature]</i>	12.
3. <i>[Signature]</i>	13.
4. <i>Nathan Salazar</i>	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. We may encounter groundwater today.
2. Wear nitrile gloves and avoid hand to
3. mouth contact around site.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

HEALTH AND SAFETY BRIEFING

Date: 10 / 4 / 04

Time: 11:55

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. <i>Wally Lacey</i>	11.
2. <i>Thomas Kye</i>	12.
3. <i>M. Wright</i>	13.
4. <i>Matthew Selinger</i>	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. You will be working below the newly installed
2. rotary attachment. Be certain all connections
3. are properly tightened and don't work
4. directly beneath it when possible
- 5.
- 6.
- 7.
- 8.
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

HEALTH AND SAFETY BRIEFING

Date: 10/6/04

Time: 8:40

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

WELL 7-13

1. <i>[Signature]</i>	11.
2. <i>[Signature]</i>	12.
3. <i>[Signature]</i>	13.
4.	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. Slow drilling in cemented zones create
2. inordinant amounts of dust. This rock dust
3. is a known respiratory hazard. Avoid the
4. cyclone discharge zone at all time unless
5. nessisary
- 6.
- 7.
- 8.
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

HEALTH AND SAFETY BRIEFING

Date: 10 / 7 / 04

Time: 8:40

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. <u>W. H. Lays</u>	11.
2. <u>Don Ray</u>	12.
3. <u>[Signature]</u>	13.
4. <u>[Signature]</u>	14.
5. <u>Michael A. Wainall</u>	15.
6. <u>Carl E. Cole</u>	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. This slow drilling has become very monotonous
2. and slow. Do your best to stay alert and do
3. not be complacent because of the boredom
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

HEALTH AND SAFETY BRIEFING

Date: 10 / 11 / 04

Time: 9:28

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. <u>[Signature]</u>	11.
2. <u>[Signature]</u>	12.
3. <u>[Signature]</u>	13.
4. <u>[Signature]</u>	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. Because we are producing well water
2. of an unknown nature wear proper PPE
3. and avoid hand to mouth contact in the
4. exclusion zone
- 5.
- 6.
- 7.
- 8.
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

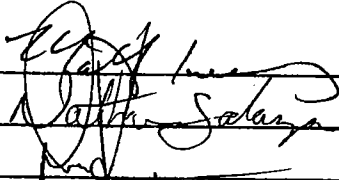
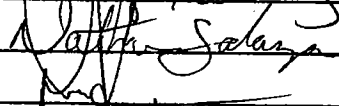

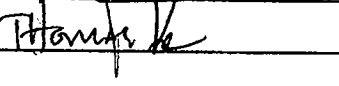
HEALTH AND SAFETY BRIEFING

Date: 10 / 12 / 04

Time: 7:30

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. 	11.
2. 	12.
3. 	13.
4. 	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. Lots of lifting ~~while~~ today as we will be
2. setting well and sand is applied by lifting many
3. 50 lb bags over backhole and slowly emptying
4. Be carefull not to lift and twist at the
5. same time and use your legs and keep
6. back straight. Rest bag on top of casing when
7. possible.
- 8.
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

HEALTH AND SAFETY BRIEFING

Date: 10 / 13 / 104

Time: 8:05

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. <i>W. H. [Signature]</i>	11.
2. <i>[Signature]</i>	12.
3. <i>[Signature]</i>	13.
4. <i>[Signature]</i>	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. Powdered bentonite is a respiratory hazard
2. which can cause chronic lung ailments. Avoid
3. inhaling this material. The use of a respirator/mask
4. when mixing grout is advised. Stay upwind
5. of airborne material as well
- 6.
- 7.
- 8.
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

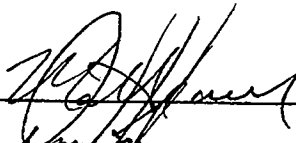
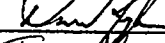


HEALTH AND SAFETY BRIEFING

Date: 10 / 14 / 04

Time: 8:25

Site Health and Safety Officers(s)

ATTENDEES SIGNATURE

1. 	11.
2. 	12.
3. 	13.
4. 	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. Decouping involves using a high pressure
2. heated stream of water. Always wear eye
3. protection, tyvek suit, nitrile gloves and
4. avoid contact with skin. Never point the
5. rod at other workers. Wear leather gloves
6. over nitrile to avoid burning hands
- 7.
- 8.
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

HEALTH AND SAFETY BRIEFING

Date: 10/19/04

Time: 08:30

Site Health and Safety Officers(s)

ACTIVITY: WELL DEVELOPMENT OF D-13

ATTENDEES SIGNATURE

1. <i>Jeff Ryk</i>	11.
2. <i>Joe Hammer</i>	12.
3.	13.
4.	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. *Ground may be slippery due to rain*
2. *Could be high wind today*
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

HEALTH AND SAFETY BRIEFING

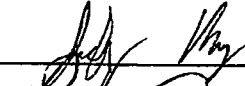

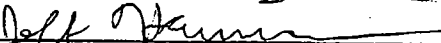
Date: 10/20/04

Time: 08:15

Site Health and Safety Officers(s)

ACTIVITY: WELL DEVELOPMENT OF D-13

ATTENDEES SIGNATURE

1. 	11.
2. 	12.
3. 	13.
4.	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

AGENDA

1. Ground very wet, watch slip/fall hazards
2. Possible high wind
3.
4.
5.
6.
7.
8.
9.

NOTE: Site specific health and safety (tailgate) briefings will be conducted each morning at the work sites by the field team leader. Briefings will be documented in the field log.

Layne Christensen Company Job Site Safety

D-13

Date 9/28/04

Site: TEAD Phase II PFI @ SWWD 58

Client: USACE

Rig/Crew: Tom Kern Dave Kyle

Observers: Matt Luehr

Crew Safety/PPE

	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt harness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Becker Hammer AP1000 with new rotary drilling attachment ✓

Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Chemicals stored away from fuel and protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels

Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Layne Christensen Company Job Site Safety

D-13

Date 9/29/04

Site: TEAD Phase II REI @ SAMN 58

Client: USACE

Rig/Crew: Tom Kern, Dave Kyle, Nate Salazar

Observers: Matt Law

Crew Safety/PPE	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt Harness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chemicals stored away from fuel and protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels ✓

Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Layne Christensen Company Job Site Safety

D-13

Date 9/30/04

Site: TEAD Phase II RFI @ SWMUS8

Client: USACE

Rig/Crew: Tom Kern, Dave Kyle, Nate Salazar

Observers: Matt Ivers

Crew Safety/PPE

YES NO N/A

YES NO N/A

Hard Hat

☒☐☐

Safety Glasses

☒☐☐

Lifting Belt Harness

☒☐☐

Training Certificates

☐☐☒

Gloves

☒☐☐

Hearing Protection

☒☐☐

Safety Shoes

☒☐☐

Proper Clothing

☒☐☐

Layne Safety Practice Manual

☐☐☒

Dust masks/Level C respirators

☐☐☒

DOT physical card, CDL and logbooks present and up to date?

☐☐☒

Emergency numbers/HASP present and posted?

☒☐☐

Comments:

Becker Hammer ✓
Sulair Compressor ✓

Site Set-up and Safety

Hole openings covered or tied off?

☐☐☒

Timbers and set-up jacks stable?

☒☐☐

Anchor guy lines secure, evenly tensioned and flagged?

☐☐☒

Mud or circulation pits barricaded or fenced?

☐☐☒

Excavation permit (CA) and shoring considerations?

☐☐☒

Traveling blocks, widow makers and elevators inspected?

☐☐☒

Site clean and organized? Footing?

☒☐☐

Bulk fuel stores lined and grounded?

☐☐☒

Pipe blocked and sloped from work area?

☒☐☐

Correct monitoring equipment present?

☒☐☐

Overhead and underground lines identified?

☒☐☐

Chemicals stored away from fuel and protected?

☐☐☒

Material Safety Data Sheets present?

☒☐☐

Warning signs/Exclusion zone posted?

☒☐☐

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels ✓

Rig Safety

Kill switch operational?

☒☐☐

All mast wiring in conduits?

☒☐☐

Vehicle pretrip inspection performed and documented?

☐☐☒

Seat belts available and used on all equipment?

☐☐☒

Fire extinguisher present and charged?

☒☐☐

First aid/BBP kit present and stocked?

☒☐☐

Danger points color coded?

☐☐☒

Controls identified?

☒☐☐

Side guardrails on platform rigs?

☐☐☒

Ropes and chains in good condition?

☒☐☐

Belts and rotating shafts guarded?

☒☐☐

All hooks have safety latches?

☒☐☐

Cables in good shape, clamps installed properly?

☒☐☐

Pressure hoses safety chained at connections?

☒☐☐

Good housekeeping in vehicle cabs?

☐☐☒

Spill control materials present?

☒☐☐

Layne Christensen Company Job Site Safety

D-13

Date 10/1/04

Site: TEAD Phase II RFI @ SWMW58

Client: USACE

Rig/Crew: Tom Kern, Dave Kyle, Nate Salazar

Observers: Matt Ivers

Crew Safety/PPE

YES NO N/A

YES NO N/A

Hard Hat

☒ ☐ ☐

Safety Glasses

☒ ☐ ☐

Lifting Belt harness (new today)

☒ ☐ ☐

Training Certificates

☐ ☐ ☒

Gloves

☒ ☐ ☐

Hearing Protection

☒ ☐ ☐

Safety Shoes

☒ ☐ ☐

Proper Clothing

☒ ☐ ☐

Layne Safety Practice Manual

☐ ☐ ☒

Dust masks/Level C respirators

☐ ☐ ☒

DOT physical card, CDL and logbooks present and up to date?

☐ ☐ ☒

Emergency numbers/HASP present and posted?

☒ ☐ ☐

Comments: Cleaned air filters on Becker hammer
and Sulair Compressor ✓

Site Set-up and Safety

Hole openings covered or tied off?

☐ ☐ ☒

Timbers and set-up jacks stable?

☒ ☐ ☐

Anchor guy lines secure, evenly tensioned and flagged?

☐ ☐ ☒

Mud or circulation pits barricaded or fenced?

☐ ☐ ☒

Excavation permit (CA) and shoring considerations?

☐ ☐ ☒

Traveling blocks, widow makers and elevators inspected?

☐ ☐ ☒

Site clean and organized? Footing?

☒ ☐ ☐

Bulk fuel stores lined and grounded?

☐ ☐ ☒

Pipe blocked and sloped from work area?

☒ ☐ ☐

Correct monitoring equipment present?

☒ ☐ ☐

Overhead and underground lines identified?

☒ ☐ ☐

Chemicals stored away from fuel and protected?

☐ ☐ ☒

Material Safety Data Sheets present?

☒ ☐ ☐

Warning signs/Exclusion zone posted?

☒ ☐ ☐

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels ✓

Rig Safety

Kill switch operational?

☒ ☐ ☐

All mast wiring in conduits?

☒ ☐ ☐

Vehicle pretrip inspection performed and documented?

☐ ☐ ☒

Seat belts available and used on all equipment?

☐ ☐ ☒

Fire extinguisher present and charged?

☒ ☐ ☐

First aid/BBP kit present and stocked?

☒ ☐ ☐

Danger points color coded?

☐ ☐ ☒

Controls identified?

☒ ☐ ☐

Side guardrails on platform rigs?

☐ ☐ ☒

Ropes and chains in good condition?

☒ ☐ ☐

Belts and rotating shafts guarded?

☒ ☐ ☐

All hooks have safety latches?

☒ ☐ ☐

Cables in good shape, clamps installed properly?

☒ ☐ ☐

Pressure hoses safety chained at connections?

☒ ☐ ☐

Good housekeeping in vehicle cabs?

☐ ☐ ☒

Spill control materials present?

☒ ☐ ☐

Layne Christensen Company Job Site Safety

Date 10/4/04

Site: TEAD Phase II RFI @ SWMU 58

Client: USACE

Rig/Crew: Tom Keen, Nate Salazar, Mike Wyatt WELL SITE D-13

Observers: Math Ivers

Crew Safety/PPE

	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt Hammer	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments: Rotary head was installed for the first time on the Becker Hammer so I inspect these connections.
15:10 - Rig Down because main pulley worn out - see photo

Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chemicals stored away from fuel and protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels

Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Layne Christensen Company Job Site Safety

D-13

Date

10/5/04

Site: TEAD Phase II RFI - @ SWMU 58

Client:

USACE

Rig/Crew:

Tom Kern Nate Salazar Dave Kyle

Observers:

Matt Ivers

Crew Safety/PPE

YES

NO

N/A

YES

NO

N/A

Hard Hat

☒☐☐

Safety Glasses

☒☐☐Lifting ~~Box~~ harness☒☐☐

Training Certificates

☐☐☒

Gloves

☒☐☐

Hearing Protection

☒☐☐

Safety Shoes

☒☐☐

Proper Clothing

☒☐☐

Layne Safety Practice Manual

☐☐☒

Dust masks/Level C respirators

☐☐☒

DOT physical card, CDL and logbooks present and up to date?

☐☐☒

Emergency numbers/HASP present and posted?

☒☐☐

Comments:

Becken Hammer w/rotary head attachment
 Replaced seized shiv wheel of main lift cable
 & greased it

Site Set-up and Safety

Hole openings covered or tied off?

☐☐☒

Timbers and set-up jacks stable?

☒☐☐

Anchor guy lines secure, evenly tensioned and flagged?

☐☐☒

Mud or circulation pits barricaded or fenced?

☐☐☒

Excavation permit (CA) and shoring considerations?

☐☒☒

Traveling blocks, widow makers and elevators inspected?

☐☐☒

Site clean and organized? Footing?

☒☐☐

Bulk fuel stores lined and grounded?

☐☐☒

Pipe blocked and sloped from work area?

☒☐☐

Correct monitoring equipment present?

☒☐☐

Overhead and underground lines identified?

☐☒☒

Chemicals stored away from fuel and protected?

☐☐☒

Material Safety Data Sheets present?

☒☐☐

Warning signs/Exclusion zone posted?

☒☐☐

Comments:

Tires, Horns, Lights, batteries, brakes, wiper, fluid levels

Rig Safety

Kill switch operational?

☒☐☐

All mast wiring in conduits?

☒☐☐

Vehicle pretrip inspection performed and documented?

☐☐☒

Seat belts available and used on all equipment?

☐☐☒

Fire extinguisher present and charged?

☒☐☐

First aid/BBP kit present and stocked?

☒☐☐

Danger points color coded?

☐☐☒

Controls identified?

☒☐☐

Side guardrails on platform rigs?

☐☐☒

Ropes and chains in good condition?

☒☐☐

Belts and rotating shafts guarded?

☒☐☐

All hooks have safety latches?

☒☐☐

Cables in good shape, clamps installed properly?

☒☐☐

Pressure hoses safety chained at connections?

☒☐☐

Good housekeeping in vehicle cabs?

☐☐☒

Spill control materials present?

☒☐☐

Layne Christensen Company Job Site Safety

D-13

Date 10/6/04

Site: TEAD Phase II RFI @ SUMO 58

Client: USACE

Rig/Crew: Tom Kerns, Mate Salazar, Dave Kyle

Observers: Matt Ivers

Crew Safety/PPE

	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments: Replaced worn pin on mechanism that allows hammer head to move back and forth over drill pipe

Site Set-up and Safety

Hole openings covered or tied off?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Chemicals stored away from fuel and protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels

Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Layne Christensen Company Job Site Safety

D-13

Date 10/7/04

Site: TEAD Phase II RFI @ SWMU 58

Client: USACE

Rig/Crew: Tom Kern, Dave Kyle, Mike Wynwill

Observers: Matt Ivers, Carl Cole

Crew Safety/PPE	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt Harness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments: Crew changes out air filter on Rig and on onboard compressor. Tom also mixes a fuel additive to aid in rig performance

Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Chemicals stored away from fuel and protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels

Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Layne Christensen Company Job Site Safety

D-13

Date 10/11/04

Site: TEAD Phase II RFI

Client: USACE

Rig/Crew: Tom Kern Nate Salazar Dwayne Kyle

Observers: Matt Ivers Carl Cole

Crew Safety/PPE	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments: Carl suggest procuring dust masks and urging crew to avoid the cyclone dust - which will be critical as we move into plume area - good practice for now

Site Set-up and Safety

Hole openings covered or tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Timbers and set-up jacks stable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Chemicals stored away from fuel and protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels ✓

Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Seat belts available and used on all equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Layne Christensen Company Job Site Safety

D-13

Date 10/12/09

Site: ~~TEAD~~ Phase II RFI @ swau ss

Client: USA CE

Rig/Crew: Tom Kern, Nate Salazar, Dave Kyle

Observers: Matt Ivers

Crew Safety/PPE

YES NO N/A

YES NO N/A

Hard Hat

☒ ☐ ☐

Safety Glasses

☒ ☐ ☐

Lifting Bel harness

☒ ☐ ☐

Training Certificates

☐ ☐ ☒

Gloves

☒ ☐ ☐

Hearing Protection

☒ ☐ ☐

Safety Shoes

☒ ☐ ☐

Proper Clothing

☒ ☐ ☐

Layne Safety Practice Manual

☐ ☐ ☒

Dust masks/Level C respirators

☐ ☐ ☒DOT physical card, CDL and logbooks
present and up to date?☐ ☐ ☒Emergency numbers/HASP present
and posted?☒ ☐ ☐

Comments:

Check hydraulic hose that blew fitting yesterday ✓

Site Set-up and Safety

Hole openings covered or tied off?

☐ ☐ ☒

Timbers and set-up jacks stable?

☒ ☐ ☐Anchor guy lines secure, evenly
tensioned and flagged?☐ ☐ ☒Mud or circulation pits barricaded
or fenced?☐ ☐ ☒Excavation permit (CA) and shoring
considerations?☐ ☐ ☒Traveling blocks, widow makers and
elevators inspected?☒ ☐ ☐

Site clean and organized? Footing?

☒ ☐ ☐

Bulk fuel stores lined and grounded?

☐ ☐ ☒

Pipe blocked and sloped from work area?

☒ ☐ ☐

Correct monitoring equipment present?

☒ ☐ ☐

Overhead and underground lines identified?

☐ ☐ ☒

Chemicals stored away from fuel and protected?

☐ ☐ ☒

Material Safety Data Sheets present?

☒ ☐ ☐

Warning signs/Exclusion zone posted?

☒ ☐ ☐

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels

Rig Safety

Kill switch operational?

☒ ☐ ☐

All mast wiring in conduits?

☒ ☐ ☐Vehicle pretrip inspection performed and
documented?☐ ☐ ☒Seat belts available and used on all
equipment?☐ ☐ ☒

Fire extinguisher present and charged?

☒ ☐ ☐

First aid/BBP kit present and stocked?

☒ ☐ ☐

Danger points color coded?

☐ ☐ ☒

Controls identified?

☒ ☐ ☐

Side guardrails on platform rigs?

☒ ☐ ☐

Ropes and chains in good condition?

☒ ☐ ☐

Belts and rotating shafts guarded?

☒ ☐ ☐

All hooks have safety latches?

☒ ☐ ☐

Cables in good shape, clamps installed properly?

☒ ☐ ☐

Pressure hoses safety chained at connections?

☒ ☐ ☐

Good housekeeping in vehicle cabs?

☐ ☐ ☒

Spill control materials present?

☒ ☐ ☐

Layne Christensen Company Job Site Safety

Date: 10-20-04 Site: TEAD offsite well D-13 Client: USACE-TEAM

Rig/Crew: Verolia water

Observers:

Crew Safety/PPE

	YES	NO	N/A		YES	NO	N/A
Hard Hat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Glasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lifting Belt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Training Certificates	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety Shoes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper Clothing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layne Safety Practice Manual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dust masks/Level C respirators	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DOT physical card, CDL and logbooks present and up to date?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Emergency numbers/HASP present and posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Site Set-up and Safety

Hole openings covered or tied off?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Timbers and set-up jacks stable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Anchor guy lines secure, evenly tensioned and flagged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mud or circulation pits barricaded or fenced?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Excavation permit (CA) and shoring considerations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Traveling blocks, widow makers and elevators inspected?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site clean and organized? Footing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bulk fuel stores lined and grounded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pipe blocked and sloped from work area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct monitoring equipment present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overhead and underground lines identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chemicals stored away from fuel and protected?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Material Safety Data Sheets present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs/Exclusion zone posted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Tires, Horns, Lights, batteries, brakes, wipers, fluid levels ✓

Rig Safety

Kill switch operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All mast wiring in conduits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle pretrip inspection performed and documented?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Seat belts available and used on all equipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire extinguisher present and charged?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First aid/BBP kit present and stocked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Danger points color coded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Controls identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Side guardrails on platform rigs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ropes and chains in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and rotating shafts guarded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All hooks have safety latches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cables in good shape, clamps installed properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pressure hoses safety chained at connections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good housekeeping in vehicle cabs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Spill control materials present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

EQUIPMENT CALIBRATION LOG

Tooele Army Depot

Eqpt. Type	Serial No.	Date	Calibration Time	Calibration Gas	Calibration Gas Lot No.	Calibrated By:	Comments
Environmental Instruments	580U-60884 329	9/15/04	10:00	100 PPM ISOBUTYLENE	903169	Matt Ivers	101.6 ppm D-12
Photo Ionization Detector		9/16/04	9:45				102.2 "
580 B		10/7/04	11:50				99.2 D-13
		"	13:40				97.8 "
		10/11/04	8:00				97.6 "
		10/19/04	12:05				103.4 D-16
		10/20/04	8:35				101.2 "
		11/1/04	8:05				96.7 C-41
		11/2/04	12:55				97.6 "
		11/11/04	7:45				103.4 C-42
		11/19/04	9:25				104.3 C-44
		11/22/04	9:10				104.8 "
		12/7/04	12:45				101.2 C-43
		12/30/04	7:55				103.4 D-14
		1/4/05	8:50				104.2 "
		1/5/05	9:35				102.6 "
		1/6/05	11:25				103.4 "

Attachment 7-1

APPENDIX C

DRILLING LOG	DIVISION Sacramento	INSTALLATION Tooele Army Depot	SHEET 1 OF 10 SHEETS
1. PROJECT Phase II RFI @ SWMU 58 (TEAD)		10. SIZE AND TYPE OF BIT 9" open face	
2. LOCATION (Coordinates or Station) 7371760.079N 1410629.706E		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
3. DRILLING AGENCY Layne Geoconstruction		12. MANUFACTURER'S DESIGNATION OF DRILL Becker Hammer AP1000	
4. HOLE NO. (As shown on drawing title and file number) D-13		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: 78 UNDISTURBED: 0	
5. NAME OF DRILLER Tom Kern		14. TOTAL NUMBER CORE BOXES —	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 4363.07 on 10/19/04	
7. THICKNESS OF OVERBURDEN 385'		16. DATE HOLE STARTED: 9/28/04 COMPLETED: 10/15/04	
8. DEPTH DRILLED INTO ROCK 0		17. ELEVATION TOP OF WELL CASING 4720.051	
9. TOTAL DEPTH OF HOLE 385'		18. TOTAL CORE RECOVERY FOR BORING — %	
		19. SIGNATURE OF INSPECTOR <i>W. J. [Signature]</i>	

TIME a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVER- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
9/28/04 15:45	2		Poorly Graded Gravel with Sand (GP) 20-30% cobble 40-50% Gravel, 20-40% sand Gravel fine to coarse with caliche skin, Cobbles to 10". Sand fine to medium Gobble & gravel are largely tan quartzite & grey limestone Sand is brown 7.5YR 5/2 Moist	X	1	The Becker Hammer Method allows a max clast size of 6" to be delivered to the cyclone so the existence or quantities of cobble or boulders above 6" diam. cannot be determined
	4			X	2	
	6			X		
	8			X		
16:03 16:07	10		- as above clasts are subrounded to angular but angular fragments are likely result of drilling process	X	3	1.8 min/ft
	12			X		
	14			X		
	16		- more cobbly	X	4	
	18			X		
16:19 16:23	20		- as above	X	5	1.2 min/ft
	22			X		
	24			X		
	26			X	6	
	28			X		
16:33	30		- as above			1.0 min/ft lunch break

TIME	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOVERY	SAMPLE NO.	REMARKS
16:40	32		- as above (GP)	X	7	
	34			X	8	
	36			X		
	38		- finer gravel and 40% sand	X		
16:53 9/29/04 7:32	40			X	9	1.3 min/ft
	42			X		
	44			X	10	
	46			X		
	48			X		
7:42 7:46	50			X	11	1.0 min/ft
	52			X		
	54			X	12	
	56			X		
	58			X		
7:52 7:56	60			X	13	0.6 min/ft
	62		- Clayey Gravel (GC) 80% cobble & gravel 20% silty clay, med plastic clay is light reddish brown SPR 6/4, moist	X		
	64			X	14	
	66			X		
	68		- silty sand (SM) low plastic reddish brown SPR 5/3 moist	X		
	70		- sandy clay (CL) med plastic reddish brown SPR 6/4 moist	X		0.7 min/ft

TIME	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOVERY	SAMPLE NO.	REMARKS
8:06			Sandy Clay (CL) ~10-20% Cobble or gravel, clay has med plasticity, ~20% fine sand, light reddish brown 5YR 6/3 moist	X	15	
	72					
	74					
	76			X	16	
	78					
8:14	80		Cemented clay, light grey 5YR 7/1, Dry, hard	X		0.8 mw/ft
8:18			Gravelly Clay, (CL) ~70% Clay 30% gravel; cobble Clay is med plastic, med Dry strength, reddish brown 5YR 4/3 Moist	X	17	
	82					
8:28	84		Silty Gravel (GM) ~30% Boulders and Cobbles 40% Gravels 10% Sand 20% silt, Cobble to 12" fine to coarse gravel Caliche skin on subangular to subrounded clasts light grey 5YR 7/1, Dry	X	18	- oil line into head breaks
9:51	86					
	88					
10:01	90			X	19	2.0 mw/ft
10:05	92					
	94		Cemented Gravels	X	20	
	96					
	98		Sandy Clay (CL) med plastic, 10% sand Reddish Brown 5YR 4/4 moist	X	21	1.4 mw/ft
10:19	100					
10:22	102		- Silty Gravel (GM) as #18			
	104		strongly cemented		22	
	106					
	108					
10:35	110					1.3 mw/ft

TIME	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOVERY	SAMPLE NO.	REMARKS
10:38	110		Silty Gravel (GM) ~20-40% Silt 60-80% cobble & Gravel 10% Sand, Pale brown 10YR 6/3 Dry		23	
	112					
	114				24	
	116					
	118					
10:53	120		- as above		25	1.5 min/ft
10:57	122					
	124		- Sandy zone		26	
	126					
	128					
11:11	130				27	1.4 min/ft
11:15	132		- cobbly			
	134		- Clayey Gravel layer (M) Reddish brown 5YR 4/4 Moist		28	
	136					
	138		- as above (GM)			
11:33	140				29	1.8 min/ft
11:37	142					
	144		- strongly - cemented matrix		30	
	146					
	148		- as above (GM)			
11:56	150					1.9 min/ft

TIME	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOVERY	SAMPLE NO.	REMARKS
12:42	152		Poorly Graded Gravel with Sand (GP) ~ 70% cobble and gravel 30% sand	X	31	
	154		Some silt, Cobble to 8" Gravel & Sand fine to coarse, Subround to Subangular Reddish Brown	X	32	
	156		2.5 YR 5/4 moist	X		
	158			X		
13:18	160		- Silty Gravel (GM) 80% cobble & gravel 20% silt some sand	X	33	3.6 min/ft
13:21	162		light reddish brown 5 YR 6/3, Dry	X		
13:24	164		- cement (hard) trace gravel	X	34	hose comes loose from head
13:31	166		- Sandy Clay (CL) med Plasticity, Reddish brown 2.5 YR 5/4 moist	X		
	168			X		
13:45	170		- Silty Gravel (GM) as #33	X	35	1.7 min/ft
13:50	172			X		
	174			X		
14:10	176		- strongly cemented layers 176-180	X	36	fuel line snaps on hammer
14:28	178			X		
	180			X		3.9 min/ft
14:41	182		- Silty Gravel (GM) ~ 60% cobble & gravel ~ 30% silt ~ 10% sand	X	37	
14:44	184		Cobble to 9" fine to coarse sand & gravel	X		
	186		subround, light grey 10 YR 7/1 Dry	X	38	
	188			X		
15:06	190			X		2.2 min/ft

TIME	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOVERY	SAMPLE NO.	REMARKS
15:10	192		Silty Gravel (GM) ~80% cobble and gravel, 20% silt trace sand, Cobble to 6" fine to coarse gravel, brown 7.5YR 5/4 dry (abundant dark volcanic at 195')	X	39	
	194			X	40	
	196			X		
	198			X		
15:36	200			X	41	2.6 MW/ft
15:39	202		- sand increasing to 20% Silty Gravel with sand (GM)	X		
	204			X	42	
	206			X		
	208		- strongly cemented matrix cobble and gravel clasts make up 90% of the cuttings but all have some evidence of cement attached	X	43	5.7 MW/ft
16:33	210		Cobbles to 6"	X		
9/30	212		Gravels - fine to coarse Moisture noted on clasts from 214'	X	44	- lunch - Head hot
8:32	214		Cement is light grey 5YR 7/1 Dry	X		
12:05	216			X	45	28.7 MW/ft
12:33	218			X		
	220		- end of cementation @ 223'	X	46	
	222			X		
	224		Poorly Graded Gravel (GP) 90% cobble & gravel, 10% silty sand grey 5YR 6/1 Dry	X		
	226			X		
	228			X		
13:49	230			X		2.9 MW/ft

TIME	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOVERY	SAMPLE NO.	REMARKS
13:53	232		- Poorly Graded Gravel (GP) with sand & silt 70% cobble (to 8") and gravel (fine to coarse)		47	
	234		Subround to subangular 15% silty sand 15% silt, no plasticity, Brown 7.5YR 5/2 Dry		48	
14:34	240				49	4.1 min/ft
14:40	242		- Silty Sand zone (SM) med plastic, red brown 5YR 5/3 moist			
	244				50	
	246		- (GP) as #47			
	248				51	1.8 min/ft
14:58	250		- Lean to Silty Clay (CL) med to high plasticity high dry strength trace fine gravel, Reddish brown 5YR 4/4, Moist			
15:10	252				52	
15:22	254		- Increase in gravel to 10-20% up to 4"			
15:41	256				53	fuel line break
	258		- quartzite boulder			
16:53	260				54	6.4 min/ft
10/1/04	262					
9:15	264		Poorly Graded Gravel (GP) with sand 10-20% cobble to 6", 40% gravel 10-20% sand with trace silt, many flat elongated clasts Yellowish Brown 10YR 5/4 moist			
	266				54	
	268					
10:18	270					6.3 min/ft

TIME	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOVER- ERY	SAMPLE NO.	REMARKS
10:22			Poorly Graded Gravel (GP) with silt and sand 70% gravel or cobble to 6", subrounded 15% silt 15% sand Yellowish brown 10 GR 5/4, Dry to moist		55	
	272					
	274				56	
	276					
	278		- size decreasing to 1/2-2" generally of gravel			
10:44	280				57	2.2 min/ft
10:47	282					
	284		- strongly cemented with most clasts < 2" light grey 5YR 7/1, Dry			
12:30	286				58	- head hot + lunch
13:03	288					- head too hot
15:01						- end of shift
15:17						switch to rotary
16:02						33.3 min/ft prior to switch
10/1/04	290				59	
15:50	292		- as sample 56			
	294				60	
16:15			- as sample 58			
16:26	296					
	298		- as above sample 56			
	300				61	2.1 min/ft using rotary from 288 to 305
	302					
	304				62	switch back to 9" Becker
16:37	306		- Silty Gravel (GM) 80% Gravel fine to coarse 5% cobble 15% S.H Grey 5YR 6/1 Dry			
10/1/04	308					
13:50	310					3.6 min/ft

TIME	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOVERY	SAMPLE NO.	REMARKS
14:12				X	63	
	312		Silty Gravel (GM) ~ 5% cobble to 8"			
	314		~ 70% gravel ~ 20% silt ~ 5% sand	X	64	
	316		subround to subangular Grey 5YR 6/1 Dry			
	318		very fine grain weak			
15:07	320		Silty Sand (SM) Plasticity with 20% cobble; Gravel brown 5YR 6/4 Dry	X	65	5.5 min/ft
15:11	322		- moderately strong cementation with 10-20% fine gravel			
	324					
	326		- Silty Gravel as above	X	66	
	328		- cemented as above			
16:12	330			X	67	6.1 min/ft
16:16			- Silty Gravel as above			
16:40	332					
10/6/04	334					
8:50	336		- Moderately cemented nodules of fine grain material (clay or silt) subround and elongated 2 to 6" diameter in a Silty Clay matrix. Brown 5YR 6/4 Dry to moist	X	68	
	338					
12:11	340		Silty Gravel	X	69	22.5 min/ft - fuel line broken
12:55						
13:20	342		- cobbly zone (2-5")			
13:35	344		- sand and fine gravel			
	346		- cemented soil w/out gravel	X	70	
	348					
16:08	350		= 9:13			Head is smoking - 23.1 min/ft

TIME	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOVERY	SAMPLE NO.	REMARKS	PID (ppm)
9:17	352		Poorly Graded Gravels (GP) bedded deposits coarsewng downward from five gravels to 4-5 inch cobbles, cobble layers are moist - almost wet minor cementation observed, trace of silty clay balls, 10-30 % sand throughout - good conduit for water were there any	X	71	Final Water Level = 253.2 bgs @ 10:05 on 10/13/04	
	354			X	72		0.2
11:04	356			X	73	10.7 min/ft	1.6
11:08	358		Brown 10 YR/5/4 to Grey 5YR 6/1, moist to dry	X			
	360			X			
	362			X			
	364		soils appear moist	X	74	Initial W.L. = 264.7 @ 12:30 10/7/04	0.8
	366			X			
11:50	368		first wet rocks observed	X		shut down - lunch & set up secondary containment & drums	
13:30	370		very few fines or sand observed from here to hole bottom @ 285	X	75	7.2 min/ft	1.8
14:00	372			X			
14:04	374		Poorly Sorted Gravels (GP) as below # 77	X	76		2.6
15:35	376			X			
10/11/04	378		several clast (to 4") of matrix cement with abundant phenocrysts (possible volcanic bedded deposit?)	X		6.9 min/ft	
14:30	380		Poorly Sorted Cobble and Gravels (GP) ~ 20% Cobble to 5" 80% gravel or very coarse sand, chiefly tan quartzite & dark grey limestone or dolomite but significant volcanic clasts (reds & greens) with well defined phenocrysts largely rounded to sub rounded, multicolored, wet	X	77		0.6
15:08	382			X			
15:11	384			X	78	11.9 min/ft	2.1
17:10	386	EOH		X			
	388			X			
	390			X			



Integrated Subsurface Evaluation

**311 Rock Avenue • Golden, CO 80401
PH 303.526.4432 • FAX 303.526.4426**

email: PedlerRAS@aol.com • www.rasinc.org

D-13

COMPANY : US AEC
WELL : D-13
LOCATION/FIELD : TEAD
COUNTY : TOOELE
LOCATION : UTAH
SECTION :

OTHER SERVICES:

TOWNSHIP :

RANGE :

DATE : 12/07/04
API NO. DRILLER :
LOG BOTTOM : 381.10
LOG TOP : 3.10

PERMANENT DATUM : TOSC

KB : NA
DF :
GL : na

CASING DIAMETER : 0
CASING TYPE : PVC
CASING THICKNESS : 0
RUN NO. : 1

LOGGING UNIT : 202
FIELD OFFICE :
RECORDED BY : whp

BIT SIZE : 6
MAGNETIC DECL. : 0
MATRIX DENSITY : 2.71
NEUTRON MATRIX : Dolomite
CASING OD : 4

BOREHOLE FLUID : 0
RM : 0
RM TEMPERATURE : 0
MATRIX DELTA T : 140

FILE : ORIGINAL
TYPE : 9512A

THRESH: 4000

WITNESSED BY : NA

ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS



Date:09/23/2005
Project Number 48743.1B

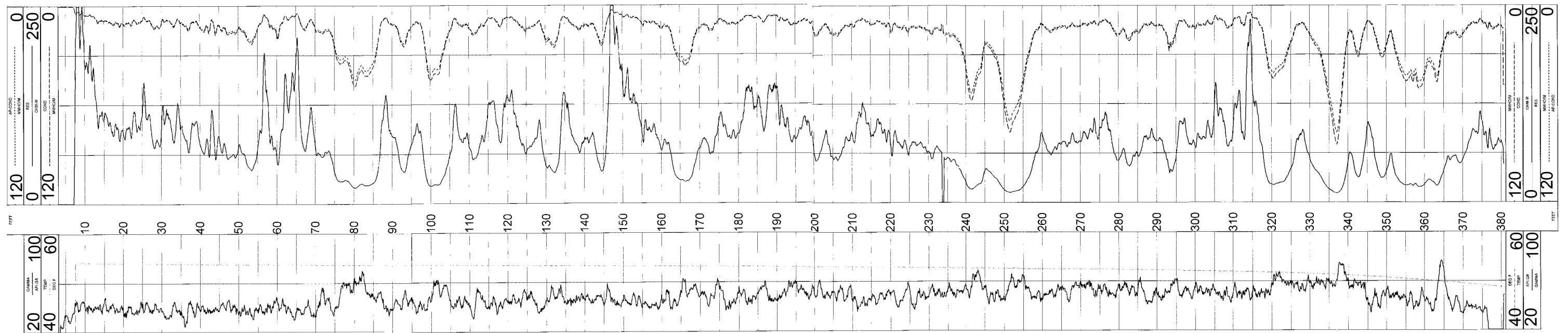
TEAD Phase II RFI

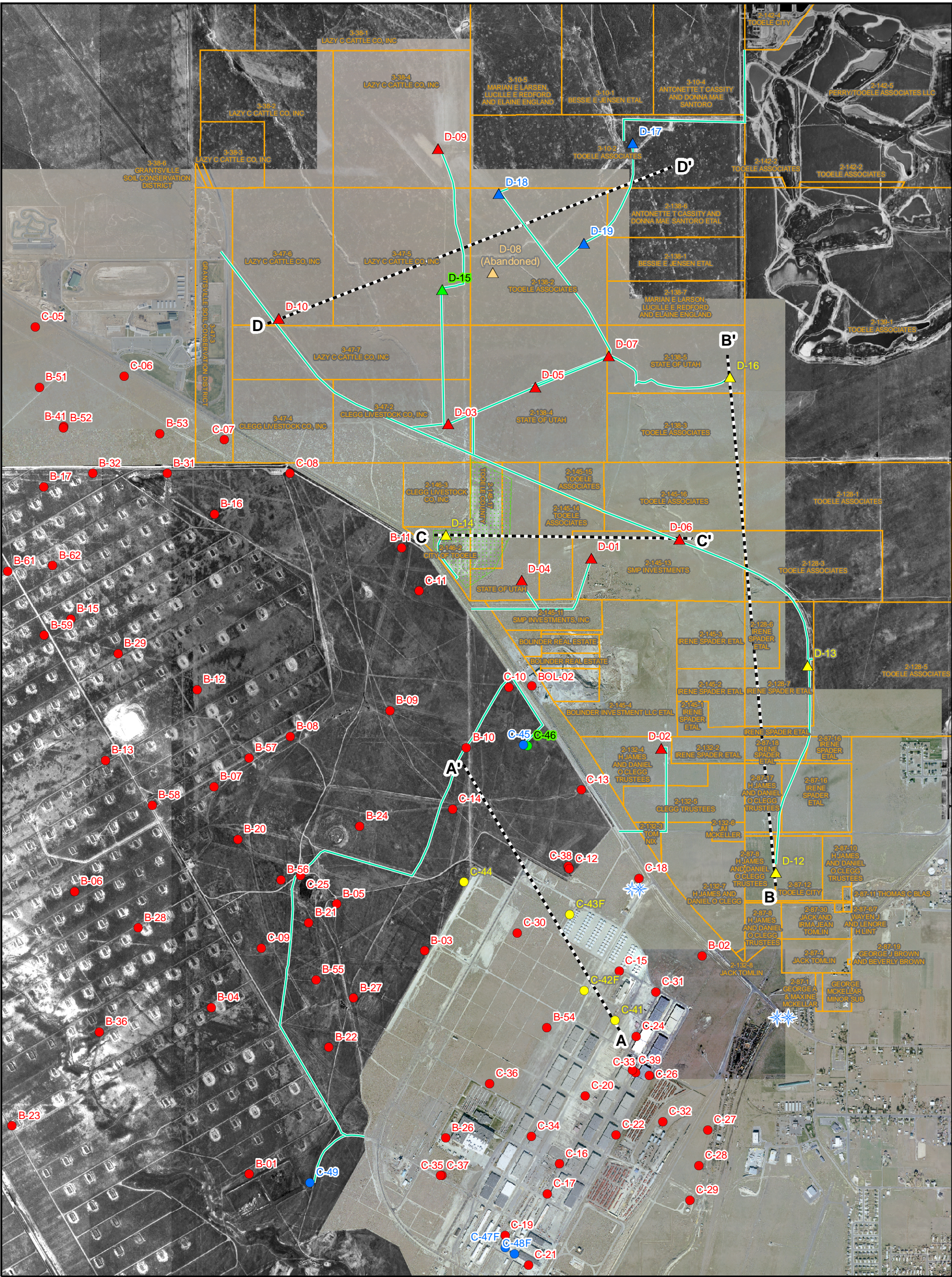
**WELL D-13
NATURAL GAMMA AND
INDUCTION ELECTRICAL LOGS**

SLC5Q232.ppt

PLATE

C-2a





Offsite Groundwater Monitoring Wells

▲ Phase I RFI Well

▲ Phase I RFI Well - Abandoned

▲ Phase II RFI - Installed Fall-Winter 2004

▲ Phase III RFI - Installed Summer 2005

▲ Proposed Phase II RFI Well

TEAD/UID Groundwater Monitoring Wells

● Existing Well

● Phase II RFI Well - Installed Fall-Winter 2004

● Phase II RFI Well - Installed Summer-Fall 2005

● Proposed Phase II RFI Well

LEGEND

★ Survey Benchmark

— Approximate Phase II RFI Well Access Route

----- Cross Section Line

Former Landfill

Parcel Boundaries / Owners

SWMU 58
PHASE II RFI
TOOELE ARMY DEPOT
TOOELE, UTAH

0 900 1,800

Feet

▲

PLATE C-3

GROUNDWATER
MONITORING WELL
LOCATION MAP

w:\tooele\maps\well_comp_report_sept2005\gw_mon_wells.mxd 12/02/05

PARSONS



311 Rock Avenue • Golden, CO 80401
PH 303.526.4432 • FAX 303.526.4426

Integrated Subsurface Evaluation email: PedlerRAS@aol.com • www.rasinc.org

D-13

NY : US AEC
: D-13
ON/FIELD : TEAD
Y : TOOELE
ON : UTAH
N :

OTHER SERVICES:

TOWNSHIP :

RANGE :

: 12/07/04
DRILLER :
TOM : 381.10
P : 3 10

PERMANENT DATUM : TOSC

KB : NA

LOG MEASURED FROM: TOSC

DF :

DRL MEASURED FROM: NA

GL : na

DIAMETER : 0
TYPE : PVC
THICKNESS : 0
: 1

LOGGING UNIT : 202

FIELD OFFICE :

RECORDED BY : whp

: 6
TIC DECL. : 0
DENSITY : 2.71
ON MATRIX : Dolomite
OD : 4

BOREHOLE FLUID : 0

FILE : ORIGINAL

RM : 0

TYPE : 9512A

RM TEMPERATURE : 0

MATRIX DELTA T : 140

THRESH: 4000

ADDITION OF BOREHOLE GEOLOGY (FROM GEOLOGIC BOREHOLE LOG BY MATTHEW J. PEDLER)
AND GEOPHYSICAL LOG INTERPRETATION BY R. JIRIK & E. JAHN

SED BY : NA

ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS

FEET		AP-COND	
	120	MMHO/M	9
GAMMA		RES	
API-GR	100	OHM-M	250
TEMP		COND	
DEG F	60	MMHO/M	0

GAMMA

API-GR

TEMP

DEG F

100

60

MMHO/M

RES

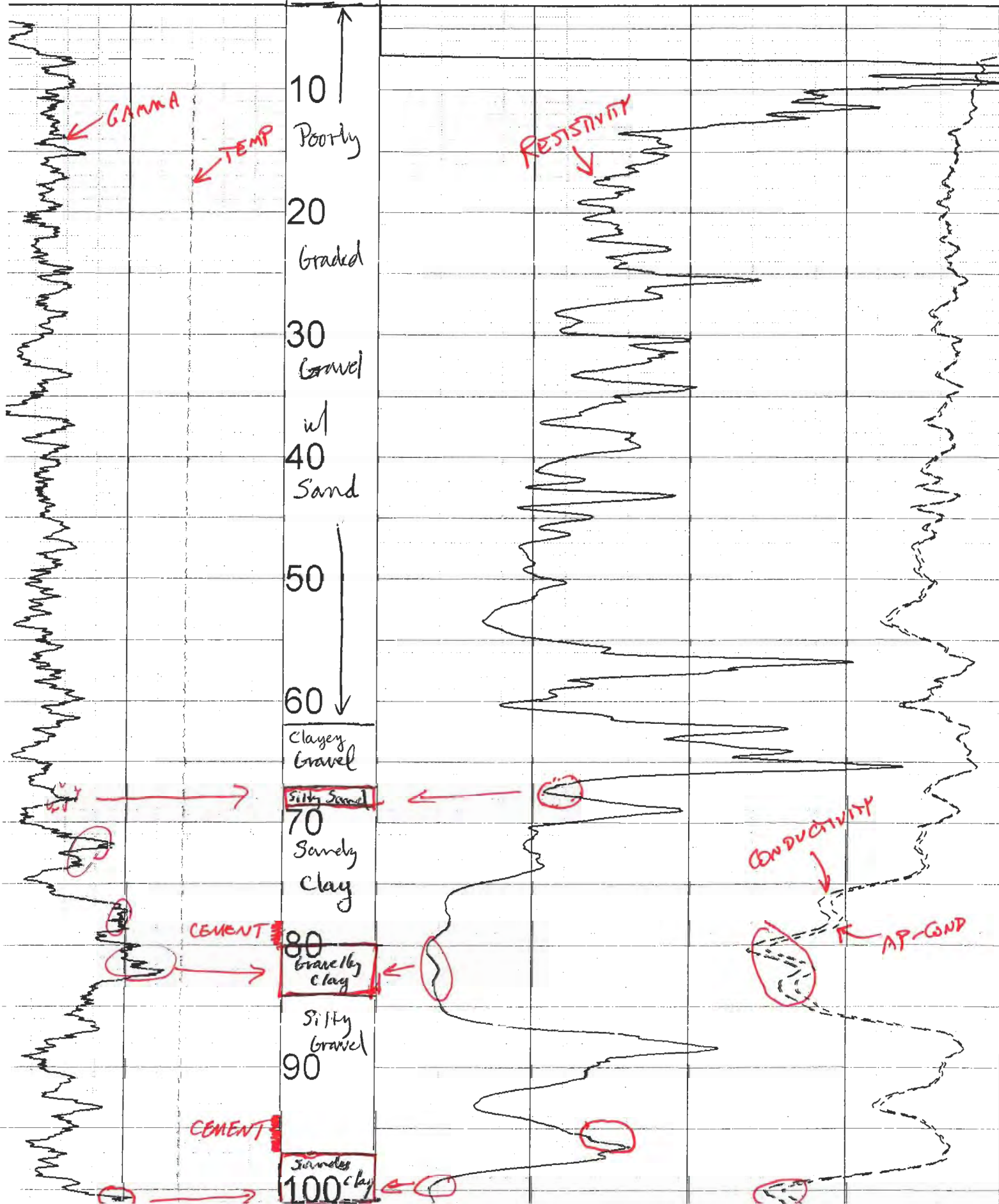
OHM-M

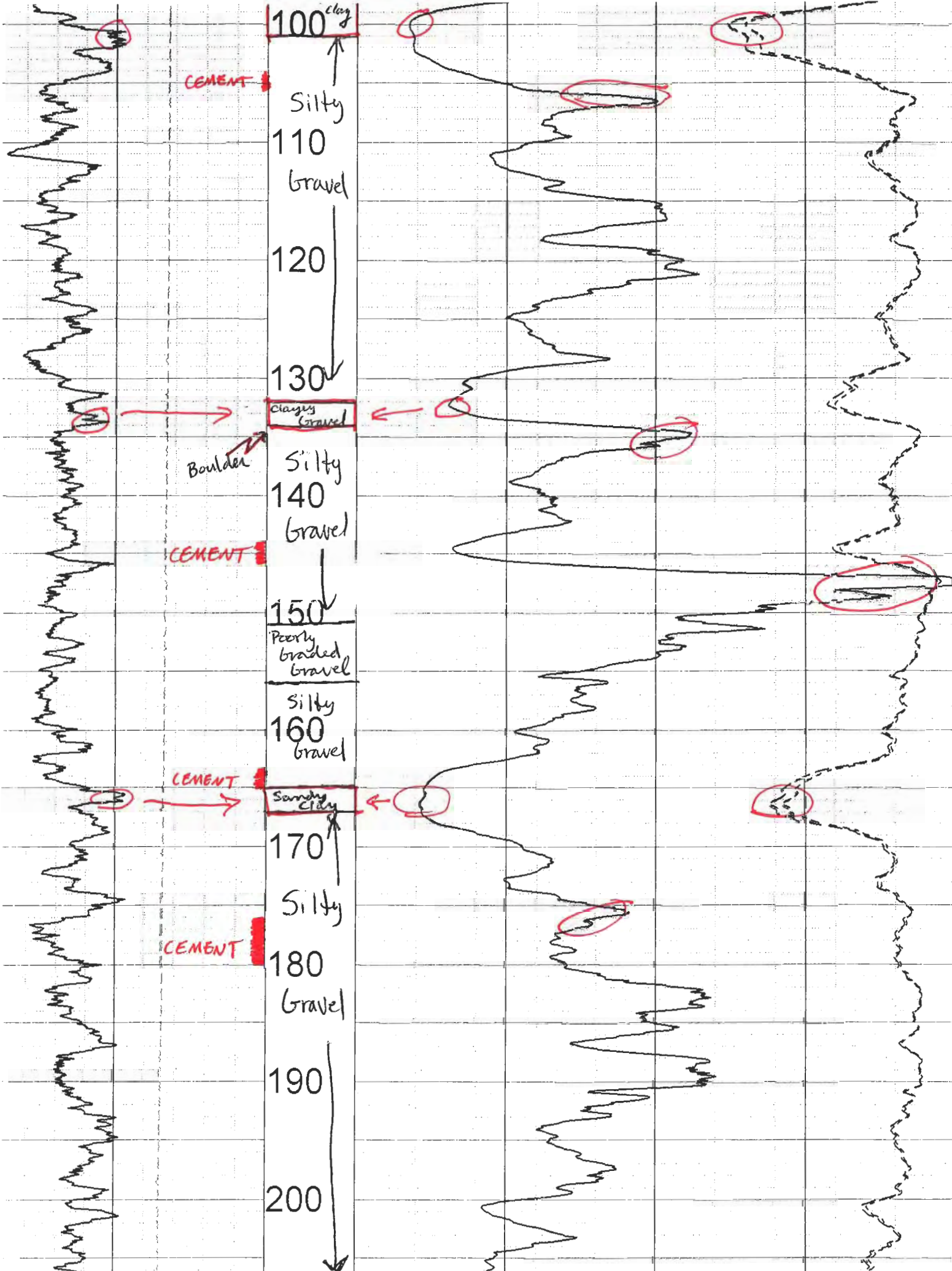
COND

MMHO/M

250

0





CEMENT

210
CEMENT
MATRIX
Cobbles

220

↑
Poorly

230
Graded
Gravel

↓
240
Silty Sand
Poorly
Graded
Gravel

250
Lean Silty
clay

260↑
Poorly
Graded

270
Gravel

280↓

CACHE
CEMENTED
ZONE

Strong
CEMENTED
290 CLASTS

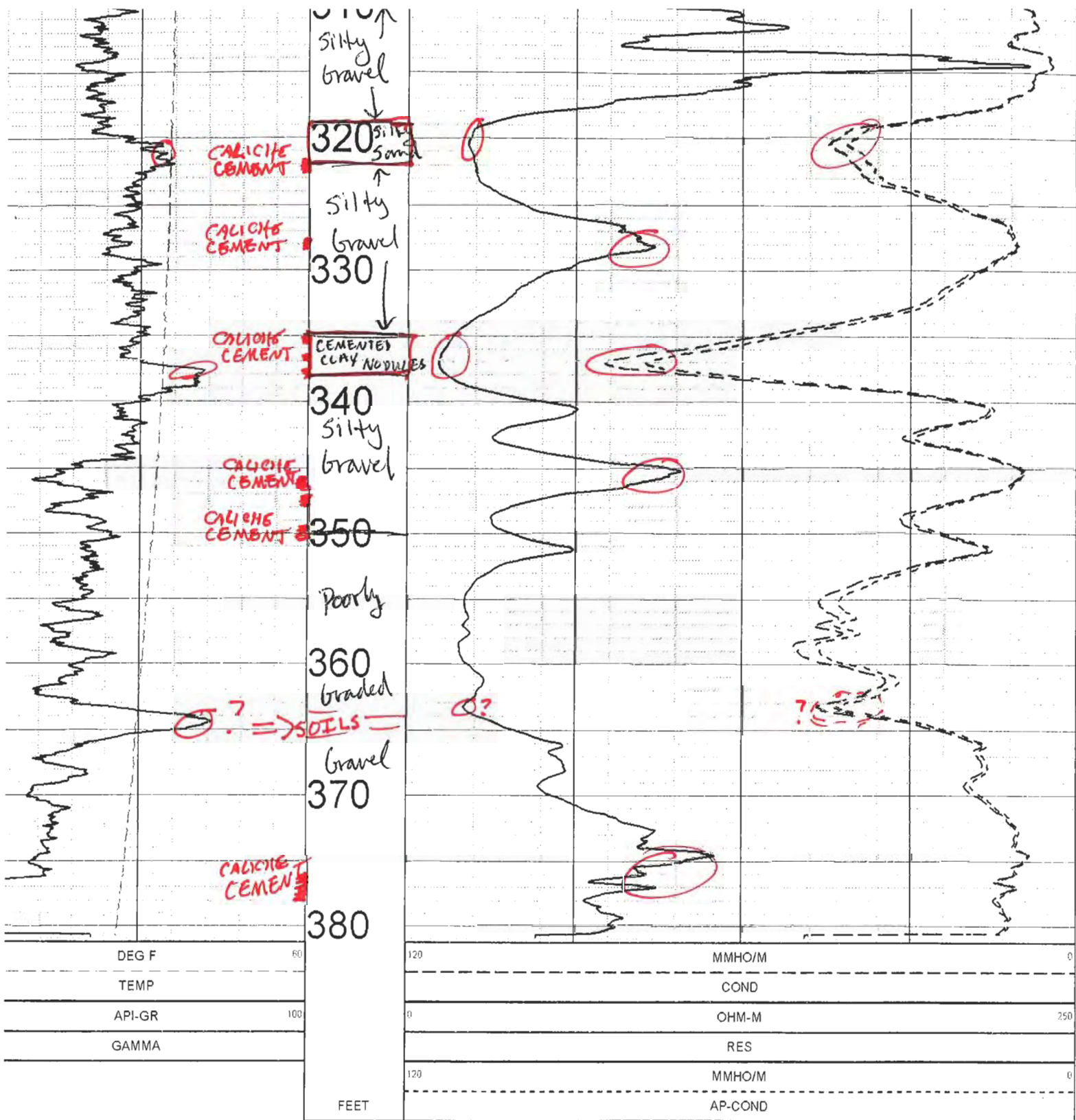
CACHE
CEMENTED
ZONE

Gravel
CEMENTED
GRAVEL

300
POORLY
GRADED
GRAVEL

SILTY
GRAVEL
310

← Quartzite
Boulder



TOOL CALIBRATION D-13 12/07/04 16:31

TOOL 9512A

SERIAL NUMBER 993

DATE	TIME	SENSOR	STANDARD	RESPONSE
Jul16,04	01:01:14	GAMMA	Default	[CPS]
Jul16,04	00:01:14	GAMMA	Default	[CPS]
Dec07,04	18:08:32	AP-COND	0.000	[MMHO/M]
Dec07,04	18:08:32	AP-COND	705.000	[MMHO/M]
Jul16,04	00:01:26	TEMP	36.400	[DEG F]
Jul16,04	00:01:26	TEMP	138.500	[DEG F]
Dec21,99	17:30:50	A	0.414	[]
Dec21,99	17:30:50	B	Default	[CPS]

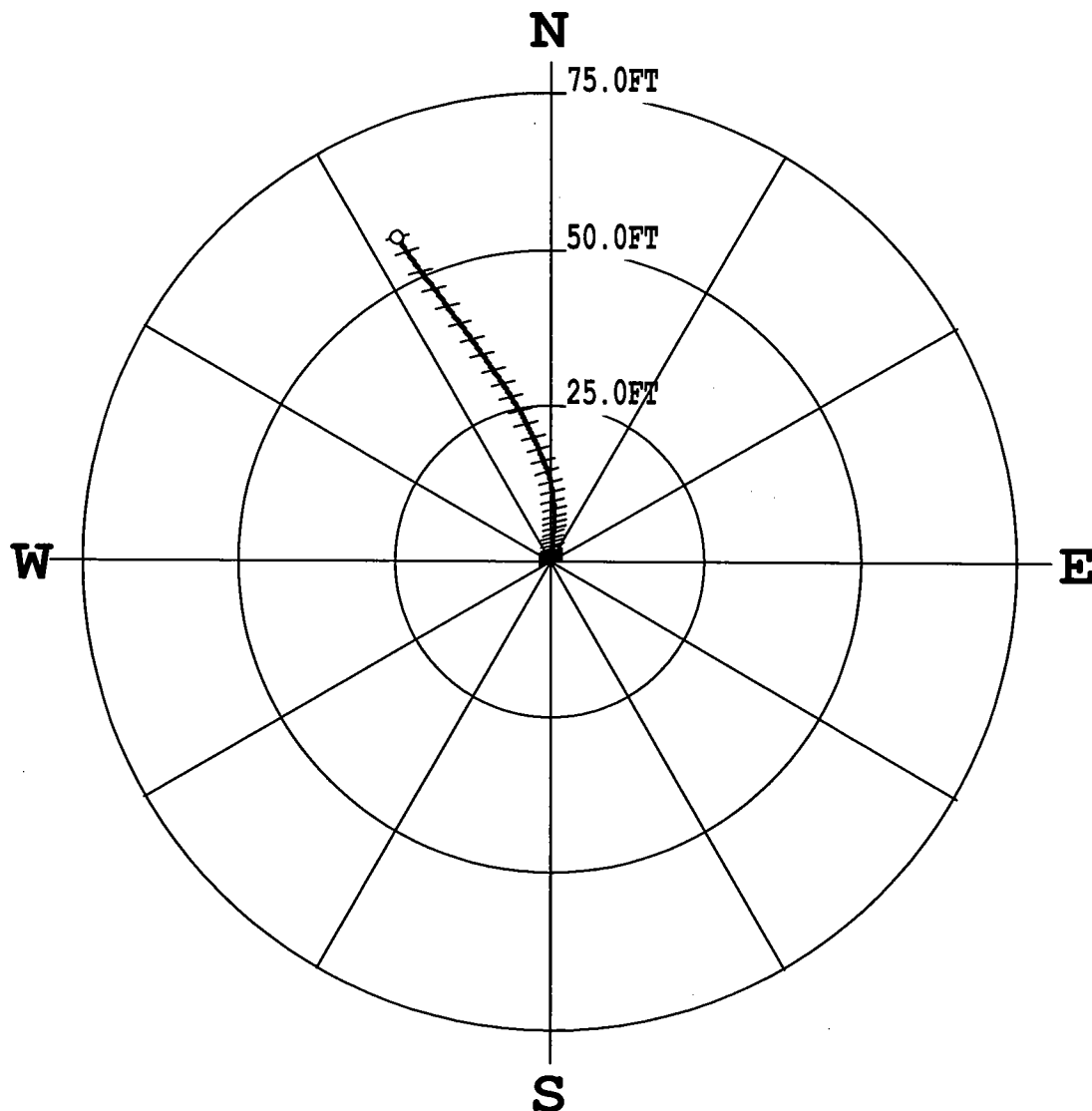
GAMMA	FEET	AP-COND
		MMHO/M
GAMMA	FEET	RES
		MMHO/M

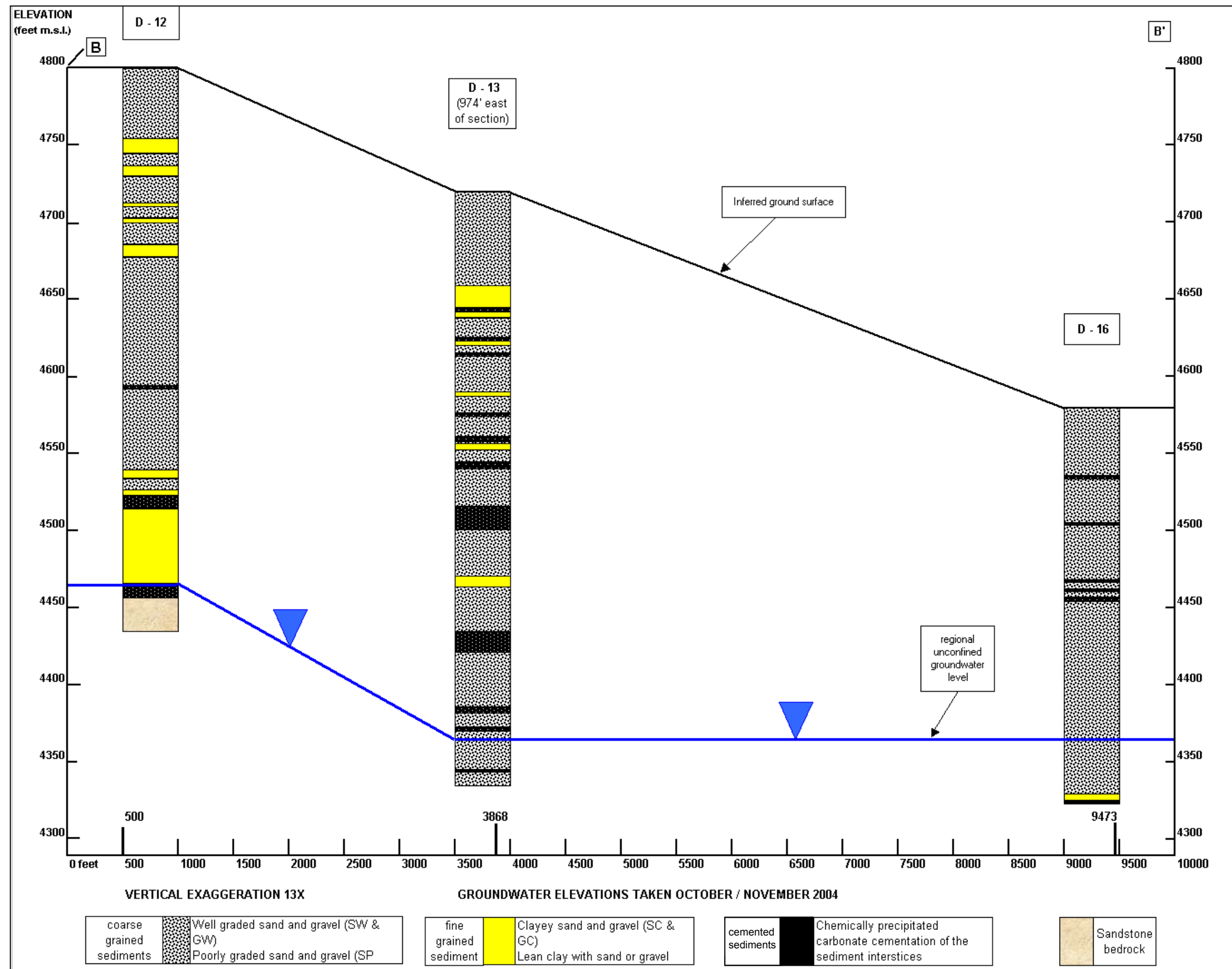
PLAN VIEW COMPU-LOG DEVIATION

CLIENT: US AEC
LOCATION: TEAD
HOLE ID: D-13-REPEAT
DATE OF LOG: 12/08/04
PROBE: 9800A 1103

↑
MAG DECL: 0.0

SCALE: 25 FT/IN
TRUE DEPTH: 376.84 FT
AZIMUTH: 334.6
DISTANCE: 57.4 FT
+ = 10 FT INCR
○ = BOTTOM OF HOLE





APPENDIX D

CONTRACTOR Kleinfelder/Parsons	WELL NUMBER D - 13	PLATE D-1
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TEAD Phase II RFI - SWMU 58

MONITORING WELL INSTALLATION DATA RECORD

PROJECT : Phase II RFI - SWMU 58	LOCATION : Tooele County, Utah
DRILLING SUBCONTRACTOR : Layne Geoconstruction	DRILLER: Tom Kearn
DRILLING METHOD AND EQUIPMENT: Becker Hammer-Drill Systems AP1000	HELPERS: Nate Salazar, Dave Kyle
WATER LEVEL : 356.98 ft (TOC) on 10/19/04 START: 9/28/04 END: 10/15/04 GEOLOGIST: Matt Ivers, Kleinfelder	

Depth (ft)
Lithology
Well

| 4 in |
| 10 in |

DRAWING NOT TO SCALE

- 1- Ground elevation at well : 4717.399 feet (brass cap)
- 2- Measuring point elevation : 4720.051 feet (top of well casing)
- 3- Surface completion casing :

a) type / diameter (ID/ OD)	<u>Steel - 10 inch ID / 10 3/8 inch OD</u>
b) height above ground	<u>3 feet</u>
c) length below ground	<u>3 feet</u>
d) type / quantity of sealant	<u>Portland cement / 16 - 92.6 lb bags</u>
e) protective bollards	<u>4 - 4 inch steel concrete filled (4' ags - 2' bgs)</u>
- 4- Well casing :

a) type / diameter (ID/ OD)	<u>Schedule 40 PVC / 4 inch</u>
b) height above ground	<u>2.65 feet</u>
c) length below ground	<u>381.99 feet</u>
d) type / quantity of sealant	<u>see # 8</u>
e) well centralizers	<u>none</u>
- 5- Well screen :

a) type / diameter (ID/ OD)	<u>Schedule 40 PVC / 4 inch</u>
b) slot size	<u>.010 inch</u>
c) lengths	<u>2 - 10 foot sections (362 to 382 feet bgs)</u>
- 6- Well screen filter pack :

a) type	<u>#16 / 40 Colorado Silica Sand</u>
b) quantity used	<u>15 - 50 lb bags</u>
c) method of placement	<u>poured from surface</u>
d) length	<u>384 to 360 feet bgs</u>
- 7- Bentonite seal :

a) type/ quantity	<u>Cetco coated pellets / 4 - 5 gallon buckets</u>
b) length	<u>352 to 360 feet bgs</u>
- 8- Grout :

a) grout mix used per batch	<u>28 gal water to 2 - 50 lb bags Pure Gold Bentonite</u>
b) method of placement	<u>pumped from surface</u>
c) qty of well casing grout	<u>96 bags (approx 1344 gallons)</u>

Well development :

a) method	<u>bail and swab / pump and back-flush</u>
b) time	<u>3 hour 22 minutes / 4 hours 43 minutes</u>

Pumping tests :

a) drawdown / time	<u>9.2 feet / 20 minutes</u>
b) pumping rate	<u>4 gpm</u>

Legal Description – Monitor Well No. D-13

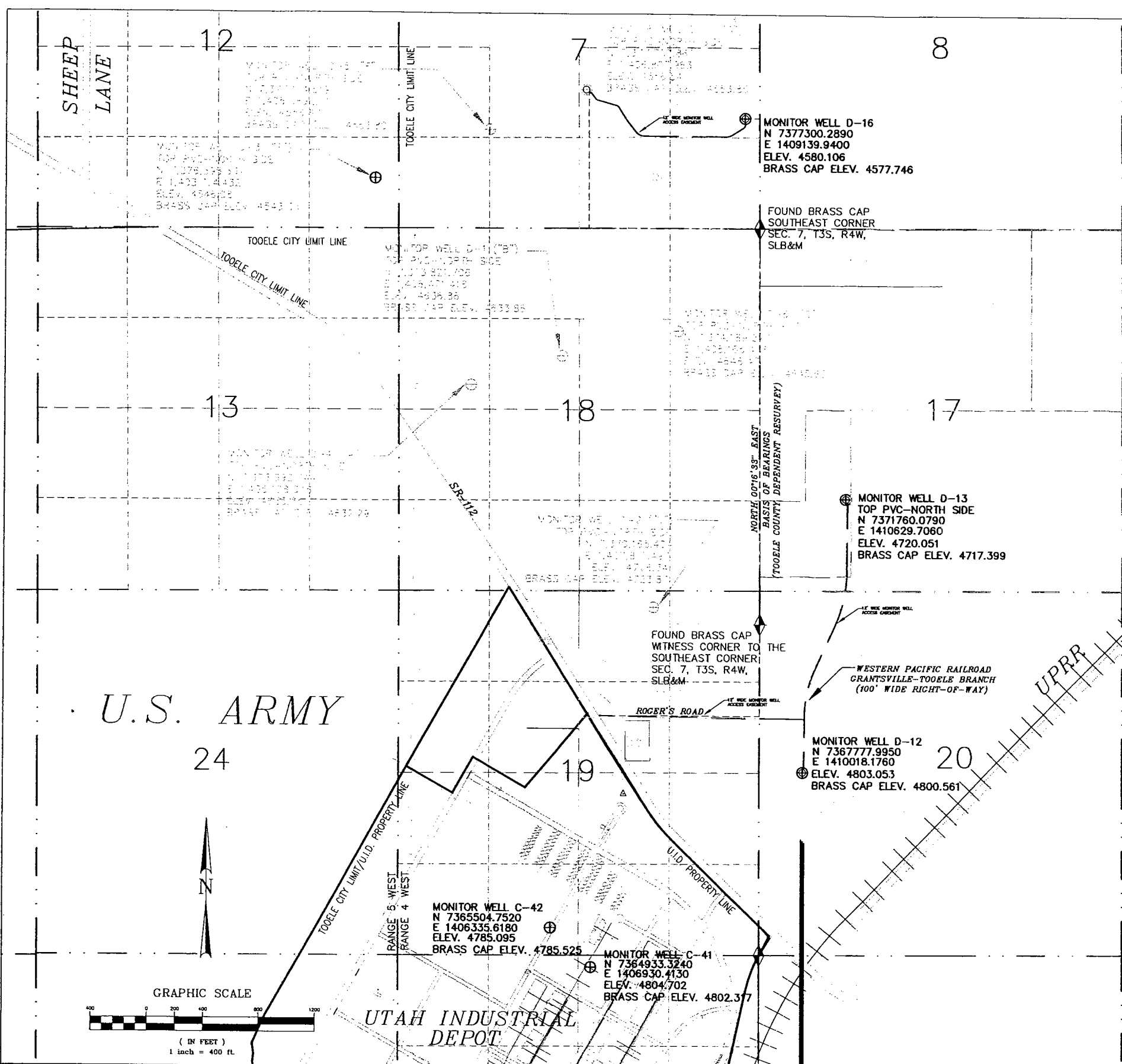
A fifty foot diameter well easement for the purpose of accessing monitor well No. D-13, the center point of which is described as follows:

Commencing at the Southwest corner of Section 17, Township 3 South, Range 4 West, Salt Lake Base and Meridian; and running thence North 00°16'57" West along the west line of the Southwest Quarter of said Section, a distance of 1,341.40 feet; thence North 89°43'03" East, a distance of 1,250.17 feet to the center point of a PVC pipe marking Monitor Well No. D-13, and point of terminus.

Well No. D-13 – Access Easement Legal Description

A twelve (12) foot wide access easement for the purpose of accessing Monitor Well No. D-13 from a public highway, the centerline of which is described as follows:

Beginning at a point which lies South 00°00'42" East along the east line of Section 19, Township 3 South, Range 4 West, Salt Lake Base and Meridian, a distance of 1,332.55 feet, and South 89°54'33" West, a distance of 2,346.78 feet from a witness corner to the Northeast corner of said Section 19, said point being on the easterly right-of-way line of State Route 112; and running thence over and across a prescriptive right-of-way for Roger's Road the following three (3) courses: South 89°11'52" East, a distance of 1,865.02 feet; thence South 89°49'44" East, a distance of 766.25 feet; thence South 89°13'27" East, a distance of 371.00 feet to a point on a dirt road within the 100' wide right-of-way of the Western Pacific Railroad-Grantsville Tooele Branch, on file with the Tooele County Recorder's Office, dated May, 1917 and point of curve of a non tangent curve to the right, of which the radius point lies North 88°31'02" East, a radial distance of 1,595.37 feet; thence along said dirt road the following four (4) courses: northerly along the arc, through a central angle of 26°12'16", a distance of 729.65 feet (chord bears North 11°37'10" East, a distance of 723.30 feet); thence North 24°11'57" East, a distance of 713.62 feet to the point of curve of a non tangent curve to the left, of which the radius point lies North 65°41'00" West, a radial distance of 1,902.79 feet; thence northerly along the arc, through a central angle of 26°01'18", a distance of 864.18 feet (chord bears North 11°18'21" East, a distance of 856.77 feet); thence North 00°20'22" East, a distance of 965.79 feet to a point on the perimeter of the fifty foot Monitor Well easement and point of terminus.



UTAH INDUSTRIAL DEPOT MONITOR WELL AND ACCESS EASEMENT LEGAL DESCRIPTIONS

LEGAL DESCRIPTION - MONITOR WELL NO. C-41
COMMENCING AT THE NORTH QUARTER CORNER OF SECTION 30, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN; AND RUNNING THENCE: THENCE NORTH 89°40'33" EAST ALONG THE NORTH LINE OF THE NORTHEAST QUARTER OF SAID SECTION 30, A DISTANCE OF 177.34 FEET; THENCE SOUTH 00°19'27" EAST, A DISTANCE OF 174.07 FEET TO THE CENTER POINT OF A PVC PIPE MARKING MONITOR WELL NO. C-41, AND POINT OF TERMINUS.

LEGAL DESCRIPTION - MONITOR WELL NO. C-42
COMMENCING AT THE SOUTH QUARTER CORNER OF SECTION 19, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN; AND RUNNING THENCE: THENCE SOUTH 89°43'47" WEST ALONG THE SOUTH LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 19, A DISTANCE OF 414.76 FEET; THENCE NORTH 00°16'13" WEST, A DISTANCE OF 400.46 FEET TO THE CENTER POINT OF A PVC PIPE MARKING MONITOR WELL NO. C-42, AND POINT OF TERMINUS.

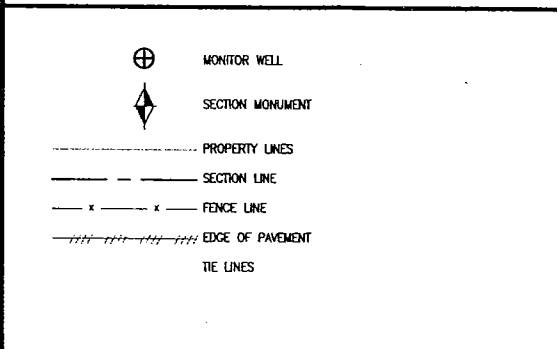
LEGAL DESCRIPTION - MONITOR WELL NO. D-12
A FIFTY FOOT DIAMETER WELL EASEMENT FOR THE PURPOSE OF ACCESSING MONITOR WELL NO. D-12, THE CENTER POINT OF WHICH IS DESCRIBED AS FOLLOWS:
COMMENCING AT THE WEST QUARTER CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN; AND RUNNING THENCE: THENCE NORTH 00°05'27" WEST ALONG THE WEST LINE OF THE NORTHWEST QUARTER OF SAID SECTION 20, A DISTANCE OF 12.32 FEET; THENCE NORTH 89°54'33" EAST, A DISTANCE OF 627.80 FEET TO THE CENTER POINT OF A PVC PIPE MARKING MONITOR WELL NO. D-12, AND POINT OF TERMINUS.

WELL NO. D-12 - ACCESS EASEMENT LEGAL DESCRIPTION
A TWELVE (12) FOOT WIDE ACCESS EASEMENT FOR THE PURPOSE OF ACCESSING MONITOR WELL NO. D-12 FROM A PUBLIC HIGHWAY, THE CENTERLINE OF WHICH IS DESCRIBED AS FOLLOWS:
BEGINNING AT A POINT WHICH LIES SOUTH 00°00'42" EAST ALONG THE EAST LINE OF SECTION 19, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN, A DISTANCE OF 1,332.55 FEET, AND SOUTH 89°54'33" WEST, A DISTANCE OF 2,346.78 FEET FROM A WITNESS CORNER TO THE NORTHEAST CORNER OF SAID SECTION 19, SAID POINT BEING ON THE EASTERLY RIGHT-OF-WAY LINE OF STATE ROUTE 112; AND RUNNING THENCE OVER AND ACROSS A PRESCRIPTIVE RIGHT-OF-WAY FOR ROGER'S ROAD THE FOLLOWING THREE (3) COURSES: SOUTH 89°11'52" EAST, A DISTANCE OF 1,865.02 FEET; THENCE SOUTH 89°49'44" EAST, A DISTANCE OF 786.25 FEET; THENCE SOUTH 89°13'27" EAST, A DISTANCE OF 371.00 FEET TO A POINT ON A DIRT ROAD WITHIN THE 100' WIDE RIGHT-OF-WAY OF THE WESTERN PACIFIC RAILROAD-GRANTSVILLE TOOELE BRANCH, ON FILE WITH THE TOOELE COUNTY RECORDER'S OFFICE, DATED MAY, 1917; THENCE SOUTH 00°41'04" WEST ALONG SAID DIRT ROAD, A DISTANCE OF 727.17 FEET TO A POINT ON THE PERIMETER OF THE FIFTY FOOT MONITOR WELL EASEMENT AND POINT OF TERMINUS.

LEGAL DESCRIPTION - MONITOR WELL NO. D-13
A FIFTY FOOT DIAMETER WELL EASEMENT FOR THE PURPOSE OF ACCESSING MONITOR WELL NO. D-13, THE CENTER POINT OF WHICH IS DESCRIBED AS FOLLOWS:
COMMENCING AT THE SOUTHWEST CORNER OF SECTION 17, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN; AND RUNNING THENCE NORTH 00°16'57" WEST ALONG THE WEST LINE OF THE SOUTHWEST QUARTER OF SAID SECTION, A DISTANCE OF 1,341.40 FEET; THENCE NORTH 89°43'03" EAST, A DISTANCE OF 1,250.17 FEET TO THE CENTER POINT OF A PVC PIPE MARKING MONITOR WELL NO. D-13, AND POINT OF TERMINUS.

WELL NO. D-13 - ACCESS EASEMENT LEGAL DESCRIPTION
A TWELVE (12) FOOT WIDE ACCESS EASEMENT FOR THE PURPOSE OF ACCESSING MONITOR WELL NO. D-13 FROM A PUBLIC HIGHWAY, THE CENTERLINE OF WHICH IS DESCRIBED AS FOLLOWS:
BEGINNING AT A POINT WHICH LIES SOUTH 00°00'42" EAST ALONG THE EAST LINE OF SECTION 19, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN, A DISTANCE OF 1,332.55 FEET, AND SOUTH 89°54'33" WEST, A DISTANCE OF 2,346.78 FEET FROM A WITNESS CORNER TO THE NORTHEAST CORNER OF SAID SECTION 19, SAID POINT BEING ON THE EASTERLY RIGHT-OF-WAY LINE OF STATE ROUTE 112; AND RUNNING THENCE OVER AND ACROSS A PRESCRIPTIVE RIGHT-OF-WAY FOR ROGER'S ROAD THE FOLLOWING THREE (3) COURSES: SOUTH 89°11'52" EAST, A DISTANCE OF 1,865.02 FEET; THENCE SOUTH 89°49'44" EAST, A DISTANCE OF 786.25 FEET; THENCE SOUTH 89°13'27" EAST, A DISTANCE OF 371.00 FEET TO A POINT ON A DIRT ROAD WITHIN THE 100' WIDE RIGHT-OF-WAY OF THE WESTERN PACIFIC RAILROAD-GRANTSVILLE TOOELE BRANCH, ON FILE WITH THE TOOELE COUNTY RECORDER'S OFFICE, DATED MAY, 1917 AND POINT OF CURVE OF A NON TANGENT CURVE TO THE RIGHT, OF WHICH THE RADIUS POINT LIES NORTH 88°31'02" EAST, A RADIAL DISTANCE OF 1,595.37 FEET; THENCE ALONG SAID DIRT ROAD THE FOLLOWING FOUR (4) COURSES: NORTHERLY ALONG THE ARC, THROUGH A CENTRAL ANGLE OF 26°12'16", A DISTANCE OF 729.65 FEET (CHORD BEARS NORTH 11°37'10" EAST, A DISTANCE OF 723.30 FEET); THENCE NORTH 24°11'57" EAST, A DISTANCE OF 713.62 FEET TO THE POINT OF CURVE OF A NON TANGENT CURVE TO THE LEFT, OF WHICH THE RADIUS POINT LIES NORTH 65°41'00" WEST, A RADIAL DISTANCE OF 1,902.79 FEET; THENCE NORTHERLY ALONG THE ARC, THROUGH A CENTRAL ANGLE OF 26°01'18", A DISTANCE OF 864.18 FEET (CHORD BEARS NORTH 11°18'21" EAST, A DISTANCE OF 856.77 FEET); THENCE NORTH 00°20'22" EAST, A DISTANCE OF 965.79 FEET TO A POINT ON THE PERIMETER OF THE FIFTY FOOT MONITOR WELL EASEMENT AND POINT OF TERMINUS.

LEGEND



LEGAL DESCRIPTIONS (CONT'D)

LEGAL DESCRIPTION - MONITOR WELL NO. D-16
A FIFTY FOOT DIAMETER WELL EASEMENT FOR THE PURPOSE OF ACCESSING MONITOR WELL NO. D-16, THE CENTER POINT OF WHICH IS DESCRIBED AS FOLLOWS:
COMMENCING AT THE SOUTHEAST CORNER OF SECTION 7, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN; AND RUNNING THENCE NORTH 00°21'59" WEST ALONG THE EAST LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 7, A DISTANCE OF 1,609.58 FEET; THENCE SOUTH 89°38'01" WEST, A DISTANCE OF 210.45 FEET TO THE CENTER POINT OF A PVC PIPE MARKING MONITOR WELL NO. D-16, AND POINT OF TERMINUS.

WELL NO. D-16 - ACCESS EASEMENT LEGAL DESCRIPTION
A TWELVE (12) FOOT WIDE ACCESS EASEMENT FOR THE PURPOSE OF ACCESSING MONITOR WELL NO. D-16 FROM MONITOR WELL NO. D-7, THE CENTERLINE OF WHICH IS DESCRIBED AS FOLLOWS:
BEGINNING AT A POINT WHICH LIES 89°42'03" WEST ALONG THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 7, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN, A DISTANCE OF 2,501.20 FEET; AND NORTH 00°17'59" WEST, A DISTANCE OF 1,995.93 FEET FROM THE SOUTHEAST CORNER OF SAID SECTION 7, SAID POINT BEING THE BEGINNING OF A CURVE TO THE RIGHT, OF WHICH THE RADIUS POINT LIES SOUTH 25°32'41" WEST, A RADIAL DISTANCE OF 150.00 FEET; AND RUNNING THENCE SOUTHEASTERLY ALONG THE ARC, THROUGH A CENTRAL ANGLE OF 25°51'49", A DISTANCE OF 67.71 FEET; THENCE SOUTH 35°59'57" EAST, A DISTANCE OF 76.49 FEET TO A POINT OF CURVE TO THE LEFT HAVING A RADIUS OF 50.00 FEET AND A CENTRAL ANGLE OF 37°52'57"; THENCE SOUTHEASTERLY ALONG THE ARC A DISTANCE OF 33.06 FEET; THENCE SOUTH 73°52'54" EAST, A DISTANCE OF 289.60 FEET TO A POINT OF CURVE TO THE RIGHT HAVING A RADIUS OF 50.00 FEET AND A CENTRAL ANGLE OF 42°17'33"; THENCE SOUTHEASTERLY ALONG THE ARC A DISTANCE OF 36.91 FEET; THENCE SOUTH 31°35'21" EAST, A DISTANCE OF 215.71 FEET; THENCE SOUTH 37°38'09" EAST, A DISTANCE OF 227.09 FEET TO A POINT OF CURVE TO THE LEFT HAVING A RADIUS OF 150.00 FEET AND A CENTRAL ANGLE OF 52°23'01"; THENCE SOUTHEASTERLY ALONG THE ARC A DISTANCE OF 137.14 FEET; THENCE NORTH 89°58'50" EAST, A DISTANCE OF 1,218.55 FEET TO A POINT OF CURVE TO THE LEFT HAVING A RADIUS OF 150.00 FEET AND A CENTRAL ANGLE OF 32°46'33"; THENCE EASTERLY ALONG THE ARC A DISTANCE OF 85.81 FEET; THENCE NORTH 57°12'17" EAST, A DISTANCE OF 201.46 FEET TO A POINT OF CURVE TO THE LEFT HAVING A RADIUS OF 50.00 FEET AND A CENTRAL ANGLE OF 52°33'46"; THENCE NORTHEASTERLY ALONG THE ARC A DISTANCE OF 45.87 FEET; THENCE NORTH 04°38'31" EAST, A DISTANCE OF 47.80 FEET TO A POINT ON THE PERIMETER OF THE FIFTY FOOT MONITOR WELL EASEMENT AND POINT OF TERMINUS.

THE BASIS OF BEARINGS FOR THIS SURVEY IS NORTH 00°16'33" EAST BETWEEN THE FOUND WITNESS CORNER MONUMENT FOR THE NORTHEAST CORNER OF SECTION 19, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN, AND THE FOUND MONUMENT FOR THE SOUTHEAST CORNER OF SECTION 7, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN.

NARRATIVE OF BOUNDARY:

THE PURPOSE OF THIS SURVEY MAP IS TO SHOW THE LOCATIONS OF FIVE MONITOR WELLS AND ACCESS ROUTES TO THE THREE "D" SERIES WELLS. COORDINATES FOR THE WELL LOCATIONS HAVE BEEN FURNISHED IN THE NAD 27 STATE PLANE CENTRAL ZONE. ELEVATIONS ARE ON THE NGVD 29 SYSTEM.

BASIS OF BEARINGS:

THE BASIS OF BEARINGS FOR THIS SURVEY IS NORTH 00°16'33" EAST BETWEEN THE FOUND WITNESS CORNER MONUMENT FOR THE NORTHEAST CORNER OF SECTION 19, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN, AND THE FOUND MONUMENT FOR THE SOUTHEAST CORNER OF SECTION 7, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SALT LAKE BASE AND MERIDIAN.

SURVEYOR'S CERTIFICATE:

I, ROBERT O. BAKER DO HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR LICENSED TO PRACTICE IN THE STATE OF UTAH, AND THAT I HOLD LICENSE NO. 172816. I FURTHER CERTIFY THAT I HAVE MADE A SURVEY OF THE PARCEL OF LAND SHOWN ON THIS MAP, THAT THE SURVEY WAS CONDUCTED USING GENERALLY ACCEPTED SURVEYING PRACTICES. IT DOES NOT PURPORT TO SHOW ALL EASEMENTS OF RECORD, NOR IS IT PROOF OF OWNERSHIP.

ROBERT O. BAKER
UTAH REGISTERED LAND SURVEYOR
LICENSE NO. 172816

REVISIONS			
No.	DATE	BY	REVISION

DRAWN BY: HU
DESIGN BY: HU
CHECKED BY: ROB
DATE: 12-10-05

CLIENT: PARSONS
DWG: MONITOR WELL-2004.dwg
JOB No: PARSON 04
DRAWING IS REDUCED IF LESS THAN 22"x34"
DIMENSIONS AND NOTES TAKE PRECEDENCE OVER SCALE.

Ward Engineering Group
Planning • Engineering • Surveying

Salt Lake City Office
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Salt Lake City, Utah 84115
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fax (801) 487-8668

RECORD OF SURVEY

LOCATED IN PARTS OF SECTION 7, 17, 19, 20, and 30
TOWNSHIP 3 SOUTH, RANGE 4 WEST,
SALT LAKE BASE AND MERIDIAN,
TOOELE, UTAH.

SHEET:
1 OF 1

APPENDIX E



**TOOELE ARMY DEPOT
MONITORING WELL SAMPLING DATA**

Well ID: D-13	Initial Depth to Water: 356.98
Sample ID:	Total Depth of Well: 384.49
Duplicate ID:	Well Diameter: 4"
Sample Depth:	(a) 1 Casing Volume:
Date: 10/19/04	(b) 1 Filter Pack Water Volume:
Sampled By:	(a) + (b) x 3 = Minimum Volume to Purge:
Method of Sampling: Development Bailer	Method of Purging: Development Bailer

Time	Intake depth	Rate (gpm)	Cum. vol. (gal)	Temp (°F)	pH (units)	Conductivity (µS/cm)	Turbidity (NTUs)	TDS (g/L)	DO (mg/L)	ORP (mv)	Salinity (ppt)	Color & Sediment
0917	1st	Bailer	* 03	47.9	6.89	2190	71000					Brown fine
1004	11th	Bailer	33	48.1	7.47	1405	71000					Brown fine
1052	20th	Bailer	60	51.9	7.51	1233	71000					tan none
1100	Surging well	w/surge	Block									
1205	30th	Bailer	90	53.3	7.50	1056	71000					tan none
1215	Surging well	w/surge	Block									
1239	35th	Bailer	105	54.9	7.47	1099	71000					tan none
3:22												

pH Calibration (select two)				Conductivity Meter Calibration		Turbidimeter Calibration	
Buffer solution	pH 4.0	pH 7.0	pH 10.0	Solution	991	Standard	5.39
Instrument reading		7.0	10.0	Instrument reading	991	Instrument reading	5.39
		0851	0854		0858		0901

Notes: * Bailer Holds 3991



**TOOELE ARMY DEPOT
MONITORING WELL SAMPLING DATA**

Well ID: D-13	Initial Depth to Water: 356.98
Sample ID:	Total Depth of Well: 384.49
Duplicate ID:	Well Diameter: 4"
Sample Depth:	(a) 1 Casing Volume: 18 gal
Date: 10/19/04	(b) 1 Filter Pack Water Volume:
Sampled By:	(a) + (b) x 3 = Minimum Volume to Purge: 54 gal
Method of Sampling: Development 4" Submersible	Method of Purging: Development 4" Submersible

Time	Intake depth	Rate (gpm)	Cum. vol. (gal)	Temp (°F)	pH (units)	Conductivity (µS/cm)	Turbidity (NTUs)	TDS (g/L)	DO (mg/L)	ORP (mv)	Salinity (ppt)	Color & Sediment
1430	382	4.02	0									
1444	382	3.96	56	54.9	7.38	954	413					cloudy none
1458	382	4.02	112	58.5	7.46	991	176					cloudy none
1512	382	4.09	168	58.3	7.37	969	86.6					cloudy none
1526	382	4.09	224	55.7	7.37	946	52.4					cloudy none
1540	382	4.06	280	54.7	7.44	925	31.3					cloudy none
1554	382	4.02	336	53.9	7.47	915	22.5					cloudy none
1555	Pump off, Backflushed			5x								
1614	Parameters after Backflush			53.4	7.44	924	206					cloudy none
1628	382	3.84	392	53.5	7.44	915	16.6					clear none
1642	382	4.02	448	53.1	7.43	901	12.2					
1643	Pump off Backflushed			5x								

pH Calibration (select two)				Conductivity Meter Calibration		Turbidimeter Calibration	
Buffer solution	pH 4.0	pH 7.0	pH 10.0	Solution		Standard	
Instrument reading				Instrument reading		Instrument reading	

Notes:



**TOOELE ARMY DEPOT
MONITORING WELL SAMPLING DATA**

Well ID: <u>D-13</u>	Initial Depth to Water:
Sample ID:	Total Depth of Well:
Duplicate ID:	Well Diameter:
Sample Depth:	(a) 1 Casing Volume:
Date: <u>10/19/04</u>	(b) 1 Filter Pack Water Volume:
Sampled By:	(a) + (b) x 3 = Minimum Volume to Purge:
Method of Sampling:	Method of Purging:

Time	Intake depth	Rate (gpm)	Cum. vol. (gal)	Temp (°F)	pH (units)	Conductivity (µS/cm)	Turbidity (NTUs)	TDS (g/L)	DO (mg/L)	ORP (mv)	Salinity (ppt)	Color & Sediment
1703	Parameters after	Backflush	53.3	7.44	916	12.9						cloudy none
1717	382	4.09	504	53.9	7.49	915	11.8					clear none
1718	Back Flushed	3x, pump off										
1734	Parameters after	Backflush	53.1	7.43	908	85.7						cloudy none
1748	382	4.02	560	53.0	7.41	899	10.4					clear none
1749	pump off, will	continue to	morrow									
3:19												

pH Calibration (select two)				Conductivity Meter Calibration		Turbidimeter Calibration	
Buffer solution	pH 4.0	pH 7.0	pH 10.0	Solution		Standard	
Instrument reading				Instrument reading		Instrument reading	

Notes:



**TOOELE ARMY DEPOT
MONITORING WELL SAMPLING DATA**

Well ID: <u>0-13</u>	Initial Depth to Water: <u>356.98</u>
Sample ID:	Total Depth of Well: <u>384.49</u>
Duplicate ID:	Well Diameter: <u>4"</u>
Sample Depth:	(a) 1 Casing Volume:
Date: <u>10/20/04</u>	(b) 1 Filter Pack Water Volume:
Sampled By:	(a) + (b) x 3 = Minimum Volume to Purge: <u>54 ggl</u>
Method of Sampling: ^{Development} <u>4" submersible</u>	Method of Purging: ^{Development} <u>4" submersible</u>

Time	Intake depth	Rate (gpm)	Cum. vol. (gal)	Temp (°F)	pH (units)	Conductivity (µS/cm)	Turbidity (NTUs)	TDS (g/L)	DO (mg/L)	ORP (mv)	Salinity (ppt)	Color & Sediment
0853	resume pumping		560									
2907	382	3.96	616	51.7	7.41	895	24.8					cloudy none
2921	382	3.84	672	51.9	7.35	891	13.8					clear none
2935	382	4.02	728	51.8	7.38	893	13.2					clear none
2949	382	3.96	784	50.9	7.40	898	11.4					clear none
1003	382	3.96	840	51.2	7.40	892	8.75					clear none
1017	382	4.09	896	51.3	7.42	888	4.09					clear none
11:24												

pH Calibration (select two)				Conductivity Meter Calibration		Turbidimeter Calibration	
Buffer solution	pH 4.0	pH 7.0	pH 10.0	Solution	991	Standard	5.39
Instrument reading		7.0	10.0	Instrument reading	991	Instrument reading	5.39
		0827	0830		0832		0835

Notes:

Tuesday, October 19, 2004
 weather: Cloudy, Cool ~ 40°
 Wind: None

- 0811 Arrive at D-13 and start Setup
 SWL 356.98 TD 384.49
- 0845 Calibrated equipment
- 0917 1st Bailer removed, Parameters Taken
- 1004 11th Bailer removed, Parameters Taken
- 1052 20th Bailer removed, Parameters Taken
- 1100 Surging well w/surge Block
- 1205 30th Bailer removed, Parameters Taken
- 1215 Surging well w/surge Block
- 1239 35th Bailer removed, Parameters Taken
- 1339 Started Lowering pump and piping
- 1428 Pump on, establishing flow
- 1430 Flow established at 4 gpm, Intake 382'
- 1555 Pump off, Backflushing well 5x
- 1643 Pump off, Backflushing well 5x
- 1718 Pump off, Backflushing well 3x
- 1748 Pump off for Today, Parameters
 Stable, Turbidity at 10.4, will
 resume pumping tomorrow
- 1750 Decon Equipment, Jeff Bigelow (Parsons)
 completing recovery portion of draw down
 test
- 1830 Leaving D-13 → GWTP

Wednesday, October 20, 2004
Weather: Rain, Cold ~ 40°
wind strong from south

- 0814 Arrive at D-13 and start setup
Larrick Begaye (Aerotech) on-site to assist
pump on establishing Flow J4
- 0826 Calibrated Equipment
- 0850 Pump on establishing Flow
- 0853 Flow established at 4 gpm
- 1017 Turbidity at 4.09, Pump off, all other
Parameters stable
- 1020 Removing pump and piping
- 1117 Decon Equipment
- 1151 Leaving D-13
- 1300 Larrick Begaye off site

Weather - cloudy, rainy, windy 40-50°F	
07:45	Arrive on-site, Cal. bucket ultrameter + turbidity meter
08:00	181P arrives + parks tanker on-site
08:15	Veolia arrives, having problems w/ personnel so I am helping Jeff Henman w/ development
08:30	H+S meeting
08:45	water level at #6 356.98 ft bgs BTOC
09:00	Start building
10:04	11th Builer w.L. at 360.30 ft BTOC
10:52	20th builer + surging w.L. at 359.80 ft BTOC
12:05	30th builer + surging w.L. at 358.20 BTOC
12:39	35th builer w.L. at 358.30 BTOC
14:25	Started pumping at ~4 gpm
16:00	Backflushing 5x
16:45	Backflushing 5x
17:25	Backflushing 3x
18:30	Left site w/1 complete work tomorrow

Continued on Page

Read and Understood By

Signed

Date

Signed

Date

07:50 Arrive on site, weather a concern, raining hard, 40-55°F, ground very wet from rain yesterday

08:10 Redix Water Services arrive, discuss weather situation and possibility of not doing D-12 aquifer test

* Carl called, pumping D-12 possibly delayed
Culbakin back + it is definitely delayed

08:15 HKS meeting

08:50 Starter pumping, should not have to backflush again

10:17 Reached parameters, turned off pump and finished developing

11:45 Left site

13:00 Meeting MAP Env to move water to 90-clay yard from tanker to Baker tank

PARSN20429301 →

Start Date 10/19/04

End Date 10/20/04

Development Well, D-13

Tanker Truck, ~1000 gallons

Had hard time getting it out of mud to Rogers Rd.

15:00 Arrive w/ tanker at 90-clay yard
Pumped water from well D-13 Soil clumps into tankers (~300 gallons)

Continued on Page

Read and Understood By

Signed

Date

Signed

Date

15:30 Pumped ~1300 gallon of water from Tomlin
into Baker Tank onsite
PARSN20429301 → PARSIV20426501

16:00 Left 90-day yard

16:45 Elevations of deep trench

① 4815.24 ft

② 4815.68 ft

③ 4778.11 ft

Continued on Page _____

Read and Understood By _____

Signed _____

Date _____

Signed _____

Date _____

APPENDIX F

PDB MONITORING WELL SAMPLE LOG

(If multiple PDB samplers are deployed in a single well, use one sample log for EACH sampler)

PDB DEPLOYMENT

Project No.:		Well LOCID: 0-13	
Installation: TOOELE ARMY DEPOT		Log Book No.	Pages: 45
Contractor: Veolia Water		Sampler(s):	
PDB Deployment Date: 11/4/04 ; Time: 1232		Weather: Wind Dir: , at ~ mph; Air Temp: °F	
Well Labeled: Y/N [y] Well Secure: Y/N [y]		Comments:	
PID SN:		Well Headspace (PID mu)	Odor
Water Level Instrument: Solinst		Serial No.: model 101	
SWL (ft BTOC): 357.00	Measured Well Depth (ft BTOC): 384.49	Reported Well Depth (ft BTOC):	
Sediment Thickness (ft):	Number of PDB Samplers deployed in well: 2	Tether Line Material: Teflon Coated S.S.	
Type of Tether Weight: S.S.		Total Weight used (oz.):	
PDB bag length (inches): 10	PDB bag volume (ml):	Protective Mesh used: Y/N [y]	
Source of Deionized Water used in Bag: mount olympus			

PDB RETRIEVAL AND SAMPLE

Well LOCID: 0-13		PDB Retrieval Date: 11/23/04 Retrieval Time: 1212	
Was ALL Deployed Equipment Retrieved (Line, Bags, Weights): Y/N [y] if NO, Explain:			
Comments on Well and PDB Tether Assembly Condition:			
Weather: Wind Dir: , at ~ mph;		Precipitation:	Air Temperature: °F
Sample No. (FIELDSAMPID): 0-136W001		Sample Date: 11/23/04	Sample Time: 1218
Sampler (s): 2	Sample Beg. Depth (ft bgs):	Sample Ending Depth (ft bgs):	
Sample Collection Method: <input checked="" type="checkbox"/> Discharge Tube <input type="checkbox"/> Other (explain):			
Approximate Volume of Excess Sample Water After Sampling (ml): 0			
Excess Sample Water Placed in Drum: Y/N [N]		Drum Number:	
SWL Following Sampling (ft BTOC):		Sample Equipment Decon: Date: by:	
Decon Water Placed in Drum: Y/N []		Drum Number:	
Prepared by: Date: / /		Reviewed by: Date: / /	

Tuesday November 2, 2004
 weather: clear, Cool $\sim 30^{\circ}$
 Wind: Breeze from South

- 0748 Arrive at D-16 and start Setup
- 0752 Calibrated Equipment
- 0814 Pump on, establishing flow
- 0816 Flow established at 9 gpm, Intake 252
- 0852 Parameters stable, Turbidity less than 5 NTU
 verified by Parsons
- 0853 Pump off
- 0900 Removing pump and piping
- 0942 Decon Equipment
- 1042 Leaving D-16 \rightarrow Tanker
- 1103 Arrive at Tanker and offloading
 ~ 350 gal of Purge water

November
 Thursday OctoberST 4, 2004
 weather: clear, warm $\sim 50^{\circ}$
 Wind: None

- 1215 Arrive at D-12 and installing 1 sampler
 (SWL 339.60) at 351.5
- 1232 Arrive at D-13 and installing 2 samplers
 at 374, SWL 357
- 1305 Arrive at D-16 and Installing 1 sampler
 at 240, SWL 214.00

Tuesday November 23, 2004
 Weather: Clear, mild ~40°
 Wind: None

- 1130 Arrive at D-12 and preparing to Sample
 1143 Removing PDB Sampler
 1147 Sampled PDB sampler, 40ml w/HCL 3 vials
 D-12 GWOOL
 1159 Leaving D-12 → D-13
 1205 Arrive at D-13 and preparing to Sample
 1212 Removing PDB sampler
 Sampled PDB sampler, 40ml w/HCL
 1218 (3) vials Taken D-13 GWOOL
 (1230) (3) vials Taken D-13 FDOOL
 1235 Leaving D-13 → D-16
 1300 Arrive at D-16 and preparing to Sample
 1306 ~~5 vials Taken~~ Removing PDB Sampler
 5 vials Taken from PDB sampler 40ml w/HCL
 1311 (3) D-16 GWOOL
 1311 (1) D-16 MSOOL
 1311 (1) D-16 SD OOL
 1321 Leaving D-16 → Parsons Field office

ANALYTICAL QUALITY CONTROL SUMMARY

Samples were collected in accordance with the analytical and quality control specifications of the Final Phase II RCRA Facility Investigation SWMU-58 Work Plan (Parsons, 2003). Passive diffusion bag samplers were deployed in wells D-12, D-13, and D-16 on the same day. Samples (including field quality control samples) were collected on the 23rd of November 2004 and submitted to Ecology and Environment Analytical Service Center, a Utah and USACE-certified analytical laboratory.

Results were received and submitted to third party data review by Synectics. Data review included checks of the following data quality elements: Holding times, continuing calibration verification, method blanks, field blanks, laboratory control sample recovery, matrix spike and matrix spike duplicate recovery and precision, surrogate recovery, and field duplicate precision. No out of control events warranting qualification of the data were observed. Analytical and data validation reports are attached.



analytical services center

International Specialists in Environmental Analysis

4493 Walden Avenue, Lancaster, New York 14086

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December 13, 2004

Jan Barbas
Parsons Engineering Science, Inc.
406 W. South Jordan Pkwy.
Suite 300
South Jordan, Utah 840953944

RE: Tooele RCRA Phase II
Work Order No.: 0411354

Dear Jan Barbas,

Analytical Services Center received 5 samples on Monday, November 29, 2004 for the analyses presented in the following report.

The ASC certifies that the test results in this report meet all requirements of NELAC for which it holds certification except as noted in this narrative and/or as flagged in the report.

The ASC is accredited in the Fields of Testing Potable water (SDWA), Solid and Chemical Materials (Solid Hazardous Wastes, RCRA), Water (CWA and other non-potable water) and Air and Emissions. Its primary accrediting authorities are New York State Department of Health and Florida Department of Health. The particular analytes/methods certified may be ascertained by requesting the laboratory's current certificates from your laboratory Project Manager.

You will receive an invoice under separate cover.

E & E will retain the samples addressed in this report for 30 days, unless otherwise instructed by the client. If additional storage is requested, the storage fee is \$1.00 per sample container per month, to accrue until the client authorizes sample destruction.

This report is not to be reproduced, except in full, without the written approval of the laboratory.

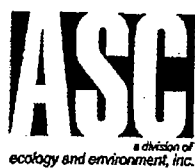
Sincerely,


Tony Bogolia

Project Manager

CC:

Enclosures as noted



Analytical Services Center
International Specialists in Environmental Analysis
Lancaster, New York 14086-
Phone: (716) 685-8080 Fax: (716) 685-0852

Laboratory Results

NYS ELAP ID#: 10486

CLIENT: Parsons Engineering Science, Inc.
Project: Tooele RCRA Phase II
Lab Order: 0411354
Date Received: 11/29/2004

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Alt. Client Id	Collection Date
0411354-01A	D-12GW001		11/23/2004 11:47:00 AM
0411354-02A	D-13GW001		11/23/2004 12:18:00 PM
0411354-03A	D-13FD001		11/23/2004 12:30:00 PM
0411354-04A	D-16GW001		11/23/2004 1:11:00 PM
0411354-05A	TRIP BLANK		11/23/2004 7:00:00 AM



Analytical Services Center

International Specialists in Environmental Analysis

4493 Walden Avenue

Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: PARSONS ENGINEERING SCIENCE, INC.
Project: Tooele RCRA Phase II
Lab Order: 0411354

CASE NARRATIVE

Samples were received at a cooler temperature of $>15^{\circ}\text{C}$. They were shipped on 11/23/04 and received at the E&E corporate office on 11/26/04. The samples were then delivered to the Analytical Services Center on 11/29/04. A trip blank was received but was not listed on a chain-of-custody form. Jan Barbas was notified on November 29, 2004 and instructed the laboratory to attempt to analyze all samples including the trip blank within half the hold time (7 days). All samples were analyzed on the seventh day of the hold time.

GCMS VOLATILES

A DB 624 column and a trap packed with OV-1, Tenax, silica gel and activated charcoal was used for the volatile analysis.

Sample Analysis

All aqueous volatile samples were determined to be at a pH of 1.

All samples were analyzed within hold time.

Calibration and Tunes

All initial and continuing calibrations were acceptable.

There were no manual integrations required.

QC

All surrogate recoveries were within acceptable limits.

All blank analyses were acceptable.

All matrix spike/spike duplicate (MS/MSD) recoveries and RPD values were acceptable.

All laboratory control sample(LCS) recoveries were acceptable.

All internal standard area responses were acceptable.

Tony Bogoln
December 13, 2004
Project Manager

SAMPLE RECEIPT RECORDS

CHAIN OF CUSTODY

PARSONS

COC ID: 821

Project Name:	Tooele Industrial Area	Contractor:	Parsons - SLC	Parsons Point of Contact: Jan Barbas
Project Manager:	Ed Staes	Installation:	TEAD	406 W. South Jordan Parkway
Sample Coordinator:	Jeff Bigelow	Sample Program:	Shallow Soil Sampling	Suite 300
				South Jordan, Utah 84095
				(801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
D-12	D-12	D-12GW001	WG	DF	N	1	11/23/04	1147	JH			3
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN					23110401					

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
<i>Jeffrey Staman</i>	11/23/04 1410	<i>[Signature]</i>	23 Nov 04 1410
<i>[Signature] TO FedEx</i>	11/23/04 1600	<i>[Signature]</i>	11/24/04 1200

CHAIN OF CUSTODY

PARSONS

COC ID: 822

Project Name: Tooele Industrial Area

Contractor: Parsons - SLC

Parsons Point of Contact: Jan Barbas
406 W. South Jordan Parkway

Project Manager: Ed Staes

Installation: TEAD

Suite 300
South Jordan, Utah 84095

Sample Coordinator: Jeff Bigelow

Sample Program: Shallow Soil Sampling

(801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
D-13	D-13	D-13GW001	WG	DF	N	1	11/23/04	1218		5 ft		3
Analysis		Lab	Cooler	No. Conts.	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN					23110401					

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
<i>Jeff Bigelow</i>	11/23/04 1410	<i>Jan Barbas</i>	23 NOV 04 1410
<i>Ed Staes</i> To Fed Ex	11/23/04 1600	<i>Jeff Bigelow</i>	11/29/04 1200

CHAIN OF CUSTODY

PARSONS

COC ID: 823

Project Name: Tooele Industrial Area

Contractor: Parsons - SLC

Parsons Point of Contact: Jan Barbas
406 W. South Jordan Parkway

Project Manager: Ed Staes

Installation: TEAD

Suite 300
South Jordan, Utah 84095

Sample Coordinator: Jeff Bigelow

Sample Program: Shallow Soil Sampling

(801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
D-13	D-13	D-13FD001	WG	DF	FD	1	11/23/04	1230	JH			3
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN					2310401					

Relinquished by (Signature)

Date/Time

Received by (Signature)

Date/Time

Jeffrey Danner
TO FedEx

11/23/04 1410
11/23/04 1600

[Signature]

23 1600 04
1410
11/23/04 1200

CHAIN OF CUSTODY

PARSONS

COC ID: 827

Project Name: Tooele Industrial Area

Contractor: Parsons - SLC

Parsons Point of Contact: Jan Barbas
406 W. South Jordan Parkway

Project Manager: Ed Staes

Installation: TEAD

Suite 300
South Jordan, Utah 84095

Sample Coordinator: Jeff Bigelow

Sample Program: Shallow Soil Sampling

(801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
D-16	D-16	D-16GW001	WG	DF	N	1	11/23/04	1311	IM			3
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN					23110401					

Relinquished by (Signature)

Date/Time

Received by (Signature)

Date/Time

Jeffery Stann To Rep Ex	11/23/04 1410	Key	23/11/04 1410
	11/23/04 1600 KA		11/23/04 1240

CHAIN OF CUSTODY

PARSONS

COC ID: 828

Project Name: Tooele Industrial Area

Contractor: Parsons - SLC

Parsons Point of Contact: Jan Barbas
406 W. South Jordan Parkway

Project Manager: Ed Staes

Installation: TEAD

Suite 300
South Jordan, Utah 84095

Sample Coordinator: Jeff Bigelow

Sample Program: Shallow Soil Sampling

(801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
D-16	D-16	D-16MS001	WG	DF	MS	1	11/23/04	1311	JM			1
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN					23110401					

Relinquished by (Signature)

Date/Time

Received by (Signature)

Date/Time

Jeff Bigelow
ESM

To Geo Ex

11/23/04 1410

11/23/04 1600

[Signature]

23 Nov 04 1410

11/27/04 1200

CHAIN OF CUSTODY

PARSONS

COC ID: 829

Project Name: Tooele Industrial Area

Contractor: Parsons - SLC

Parsons Point of Contact: Jan Barbas
406 W. South Jordan Parkway

Project Manager: Ed Staes

Installation: TEAD

Suite 300
South Jordan, Utah 84095

Sample Coordinator: Jeff Bigelow

Sample Program: Shallow Soil Sampling

(801) 572-5999 FAX (801) 572-9069

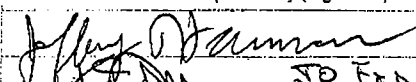

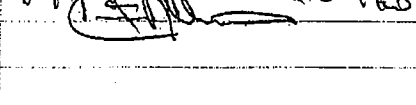
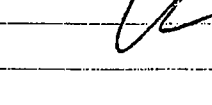
Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
D-16	D-16	D-16SD001	WG	DF	SD	1	11/23/04	1311	SH			1
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN					23110401					

Relinquished by (Signature)

Date/Time

Received by (Signature)

Date/Time

	11/23/04 1410		23 Nov 04 1410
 TO FED EX	11/23/04 1600		11/24/04 1200



Cooler Receipt Form

No. of Packages:	1	Date Received:	11/29/07
Package Receipt No.:	15016	Project or Site Name:	
Client:	Parsons		

A. Preliminary Examination and Receipt Phase

1. Did coolers come with airbill or packing slip?	Circle One		
Circle carrier here and print airbill number below: Fed Ex Airborne Client Other	Yes	No	NA
Shipped as high hazard or dangerous goods?	Yes	No	NA
2. Did cooler(s) have custody seals?	Yes	No	NA
3. Were custody seals unbroken and intact on receipt?	Yes	No	NA
4. Were custody seals dated and signed?	Yes	No	NA
5. How was package secured? <input type="checkbox"/> Not secured <input type="checkbox"/> Fiberglass Tape <input checked="" type="checkbox"/> TAPE	Yes	No	NA

B. Unpacking Phase

6. Date cooler(s) opened:	11/29/07	Cooler(s) opened by:	Alley
7. Was a temperature blank vial included inside cooler(s)?	Yes	No	NA
Please Record Temperature Vial or Cooler Temperature for Each Cooler, Range (2° - 6°C)*			
Airbill No.	Temp. °C	Airbill No.	Temp. °C
8457-2765 3991	25.0		
Thermometer No.:	231	Correction Factor:	0
*If temperature is outside of acceptable range, prepare a PM Notification form indicating affected containers.			
8. Were the C-O-C forms received?	Yes	No	NA
C-O-C forms numbers if present:			
9. Was enough packing material used in cooler(s)?	Yes	No	NA
Type of material: <input type="checkbox"/> Vermiculite <input checked="" type="checkbox"/> Bubble Wrap <input type="checkbox"/> Other			
10. If cooling was required, what was the means (type ice) of cooling used: <input checked="" type="checkbox"/> Wet <input type="checkbox"/> Dry <input type="checkbox"/> Blue <input type="checkbox"/> Other			NA
11. Were all containers sealed in separate plastic bags?	Yes	No	NA
12. Did all containers arrive unbroken and in good condition?	Yes	No	NA
13. Interim storage area if not logged:			
In: Date	Time	Signature	
Out: Date	Time	Signature	

C. Login Phase

Samples Logged in By Signature:	Date:	11/29/07	
14. Were all container labels complete (e.g. date, time preserved)?	Yes	No	NA
15. Were all C-O-C forms filled out properly in black ink and signed?	Yes	No	NA
16. Did the C-O-C form agree with containers received?	Yes	No	NA
17. Were the correct containers used for the tests requested?	Yes	No	NA
18. Were the correct preservatives listed on the sample labels?	Yes	No	NA
19. Was a sufficient sample volume sent for the tests requested?	Yes	No	NA
20. Were all volatile samples received without headspace?	Yes	No	NA



PROJECT MANAGER NOTIFICATION

Originator: K. Oakley Date: 11/29/04
ASC Project Manager: Tony Bompale Client: Panasonic - Toledo
Job Nos.: 0411354
Sample Nos.: All

Nature of Concern:

☐ Samples warm @ 75.0°c

List Containers: _____

☐ Containers broken. List: _____

☐ Discrepancy between sample containers and COC form

☐ Incorrect or insufficient preservation

☐ Headspace in volatile vials (waters samples only)

☐ Lost shipment: _____

☐ Other (e.g., leaking container, unreadable label, COC form): _____

Further Description: _____

PROJECT MANAGER FOLLOW-UP

☒ Notified Client: Jim Barlow

on 11/29/04
(Date)

☐ Notification attempted:

Means: _____

on _____
(Date)

☐ Notification unnecessary

☐ Notify Sample Management

Action: see attached email

Project Manager Signature Tony Bompale

Date 11/29/04

Bogolin, Tony

From: Barbas, Jan [Jan.Barbas@parsons.com]
Sent: Monday, November 29, 2004 5:00 PM
To: Bogolin, Tony
Cc: Torgensen, John
Subject: RE: Tooele sample receipt 112904

Hi,

Please analyze the trip blank.

The EDD does go to Synectics.

Jan

From: Bogolin, Tony [mailto:ABogolin@ene.com]
Sent: Monday, November 29, 2004 2:43 PM
To: Barbas, Jan
Cc: Torgensen, John
Subject: RE: Tooele sample receipt 112904

Here is the sample receipt information. We received a trip blank that was not listed on the COC forms. We logged it in for analysis. Let me know if you do not want it analyzed.

Does the EDD for these samples go to Synectics?

Tony

From: Barbas, Jan [mailto:Jan.Barbas@parsons.com]
Sent: Monday, November 29, 2004 2:37 PM
To: Bogolin, Tony
Cc: Torgensen, John; Wehrmann, Pamela A SPK
Subject: RE: Tooele sample receipt 112904

Go ahead and log them in. If you can run them tomorrow I think that would work since I miscounted the hold time. We have until tomorrow. If not let's plan on running them anyway. I'll let the client know and get their input.

Jan

From: Bogolin, Tony [mailto:ABogolin@ene.com]
Sent: Monday, November 29, 2004 12:16 PM
To: Barbas, Jan
Cc: Torgensen, John; Wehrmann, Pamela A SPK
Subject: RE: Tooele sample receipt 112904

No. The instrument is fully loaded for today so the quickest would be some time tomorrow evening if we could get another instrument up for low-level water VOCs.

From: Barbas, Jan [mailto:Jan.Barbas@parsons.com]

Sent: Monday, November 29, 2004 1:45 PM
To: Bogolin, Tony
Cc: Torgensen, John; Wehrmann, Pamela A SPK
Subject: RE: Tooele sample receipt 112904

Hi Tony,

Thanks for the heads-up. We thought they'd be in last Wednesday. The rule on warm samples is that if they are analyzed within 1/2 hold time they are ok. These were sampled Tuesday. That would mean they have to be analyzed by mid-night today. Can you do that?

Jan

From: Bogolin, Tony [mailto:ABogolin@ene.com]
Sent: Monday, November 29, 2004 11:30 AM
To: Barbas, Jan
Cc: Torgensen, John
Subject: Tooele sample receipt 112904

Jan:

We received these samples today. They were shipped by FedEx on 11/23 and marked for overnight delivery. Why they did not show until today I don't know. Of course they were warm >15 C. Should we cancel the analysis as they are VOC samples? Let me know.

Tony

<<tooelecoc.pdf>>

MISC RECORDS



Analytical Services Center

International Specialists in Environmental Analysis

Lancaster, New York 14086-

Phone: (716) 685-8080 Fax: (716) 685-0852

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Order: 0411354
Client: Parsons Engineering Science, Inc.
Project: Tooele RCRA Phase II

DATES SUMMARY REPORT

Sample ID (CLIENT)	Matrix	Test Name	Collection Date	Received Date	HT (Days) / HT Expire	Analyzed* - Analysis/BatchID	Type	DF	#Analytes	Fl
354-01A	D-12GW001	Water Low Level VOCs by Method 8260B	11/23/2004 11:47:00 AM	11/29/2004 12:00:00 PM	14:C 12/7/2004 11:47:00 AM	11/30/2004 4:18:00 PM 1072898	SAMP	1	21	[
354-03A	D-13FD001	Water Low Level VOCs by Method 8260B	11/23/2004 12:30:00 PM	11/29/2004 12:00:00 PM	14:C 12/7/2004 12:30:00 PM	11/30/2004 5:21:00 PM 1072900	SAMP	1	21	[
354-02A	D-13GW001	Water Low Level VOCs by Method 8260B	11/23/2004 12:18:00 PM	11/29/2004 12:00:00 PM	14:C 12/7/2004 12:18:00 PM	11/30/2004 4:49:00 PM 1072899	SAMP	1	21	[
354-04A	D-16GW001	Water Low Level VOCs by Method 8260B	11/23/2004 1:11:00 PM	11/29/2004 12:00:00 PM	14:C 12/7/2004 1:11:00 PM	11/30/2004 5:52:00 PM 1072901	SAMP	1	21	[
354-05A	TRIP BLANK	Water Low Level VOCs by Method 8260B	11/23/2004 7:00:00 AM	11/29/2004 12:00:00 PM	14:C 12/7/2004 7:00:00 AM	11/30/2004 3:46:00 PM 1072897	SAMP	1	21	[

From: C-Collection / R- Receipt(VTSR) / P-Prep / T-TCLP Prep

"Analyzed" reflects the analysis date and time or injection time for analytical tests. For preparation tests "Analyzed" reflects the start of the preparation except when "AFCEE criteria used"; flag indicates date of completion of the preparation.

TCLP/SPLP Extractions and subsequent preparation tests... "Analyzed" reflects the date of TCLP/SPLP Extraction/preparation. For Re-extracted (RE) samples: Preparation tests completed dates reflects extraction from the original sample leachate unless an "RE" Sample exists for the extraction (tumble) test.

Version #: 041210_1300

Printed: Monday, December 13, 2004 9:37:11 AM



Analytical Services Center
International Specialists in Environmental Analysis
Lancaster, New York 14086-
Phone: (716) 685-8080 Fax: (716) 685-0852

Laboratory Results

NYS ELAP ID#: 10486

Client: Parsons Engineering Science, Inc.
Project: Tooele RCRA Phase II
Work Order: 0411354

Method References

GCMS Volatiles

Parsons, Tooele - VOCs, Low Level by GCMS Method 8260B

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes 1A, 1B, 1C & Volume 2. (Includes all Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.

RESULTS SUMMARY

**Analytical Services Center**

International Specialists in Environmental Analysis

4493 Walden Avenue

Lancaster, New York 14086

a division of
ecology and environment, inc.**Laboratory Results**

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: D-12GW001

Lab Order: 0411354

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/23/2004 11:47:00 A % Moist:

Lab ID: 0411354-01A

Sample Type: SAMP

Matrix: Water

Test Code: C_8260B_5030B_LL_W_018

LOW LEVEL VOCs BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		1.00	µg/L	1	11/30/2004 4:18:00 PM	PERRY_041130A	RMJ
1,1,2-Trichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethene	ND		1.00	µg/L	1			
1,2-Dichloroethane	ND		1.00	µg/L	1			
1,2-Dichloropropane	ND		1.00	µg/L	1			
Benzene	ND		1.00	µg/L	1			
Carbon tetrachloride	ND		1.00	µg/L	1			
Chloroethane	ND		1.00	µg/L	1			
Chloroform	ND		1.00	µg/L	1			
cis-1,2-Dichloroethene	ND		1.00	µg/L	1			
Ethylbenzene	ND		1.00	µg/L	1			
m,p-Xylene	ND		1.00	µg/L	1			
Methylene chloride	ND		2.00	µg/L	1			
Naphthalene	ND		1.00	µg/L	1			
o-Xylene	ND		1.00	µg/L	1			
Tetrachloroethene	ND		1.00	µg/L	1			
Toluene	ND		1.00	µg/L	1			
trans-1,2-Dichloroethene	ND		1.00	µg/L	1			
Trichloroethene	ND		1.00	µg/L	1			
Vinyl chloride	ND		1.00	µg/L	1			
Surr:1,2-Dichloroethane-d4	110		70 - 130	%REC	1	11/30/2004 4:18:00 PM	PERRY_041130A	RMJ
Surr:4-Bromofluorobenzene	108		70 - 130	%REC	1			
Surr:Toluene-d8	112		70 - 130	%REC	1			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits



Analytical Services Center
International Specialists in Environmental Analysis
4493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: D-13GW001

Lab Order: 0411354

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/23/2004 12:18:00 P % Moist:

Lab ID: 0411354-02A

Sample Type: SAMP

Matrix: Water

Test Code: C_8260B_5030B_LL_W_018

LOW LEVEL VOCs BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		1.00	µg/L	1	11/30/2004 4:49:00 PM	PERRY_041130A	RMJ
1,1,2-Trichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethene	ND		1.00	µg/L	1			
1,2-Dichloroethane	ND		1.00	µg/L	1			
1,2-Dichloropropane	ND		1.00	µg/L	1			
Benzene	ND		1.00	µg/L	1			
Carbon tetrachloride	ND		1.00	µg/L	1			
Chloroethane	ND		1.00	µg/L	1			
Chloroform	0.193	J	1.00	µg/L	1			
cis-1,2-Dichloroethene	ND		1.00	µg/L	1			
Ethylbenzene	ND		1.00	µg/L	1			
m,p-Xylene	ND		1.00	µg/L	1			
Methylene chloride	ND		2.00	µg/L	1			
Naphthalene	ND		1.00	µg/L	1			
o-Xylene	ND		1.00	µg/L	1			
Tetrachloroethene	ND		1.00	µg/L	1			
Toluene	ND		1.00	µg/L	1			
trans-1,2-Dichloroethene	ND		1.00	µg/L	1			
Trichloroethene	ND		1.00	µg/L	1			
Vinyl chloride	ND		1.00	µg/L	1			
Surr:1,2-Dichloroethane-d4	108		70 - 130	%REC	1	11/30/2004 4:49:00 PM	PERRY_041130A	RMJ
Surr:4-Bromofluorobenzene	107		70 - 130	%REC	1			
Surr:Toluene-d8	113		70 - 130	%REC	1			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not ignite

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P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits



Analytical Services Center
International Specialists in Environmental Analysis
4493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: D-13FD001

Lab Order: 0411354

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/23/2004 12:30:00 P % Moist:

Lab ID: 0411354-03A

Sample Type: SAMP

Matrix: Water

Test Code: C_8260B_5030B_LL_W_018

LOW LEVEL VOCs BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		1.00	µg/L	1	11/30/2004 5:21:00 PM	PERRY_041130A	RMJ
1,1,2-Trichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethene	ND		1.00	µg/L	1			
1,2-Dichloroethane	ND		1.00	µg/L	1			
1,2-Dichloropropane	ND		1.00	µg/L	1			
Benzene	ND		1.00	µg/L	1			
Carbon tetrachloride	ND		1.00	µg/L	1			
Chloroethane	ND		1.00	µg/L	1			
Chloroform	0.195	J	1.00	µg/L	1			
cis-1,2-Dichloroethene	ND		1.00	µg/L	1			
Ethylbenzene	ND		1.00	µg/L	1			
m,p-Xylene	ND		1.00	µg/L	1			
Methylene chloride	ND		2.00	µg/L	1			
Naphthalene	ND		1.00	µg/L	1			
o-Xylene	ND		1.00	µg/L	1			
Tetrachloroethene	ND		1.00	µg/L	1			
Toluene	ND		1.00	µg/L	1			
trans-1,2-Dichloroethene	ND		1.00	µg/L	1			
Trichloroethene	ND		1.00	µg/L	1			
Vinyl chloride	ND		1.00	µg/L	1			
Surr:1,2-Dichloroethane-d4	109		70 - 130	%REC	1	11/30/2004 5:21:00 PM	PERRY_041130A	RMJ
Surr:4-Bromofluorobenzene	107		70 - 130	%REC	1			
Surr:Toluene-d8	113		70 - 130	%REC	1			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits



Analytical Services Center
International Specialists in Environmental Analysis
4493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Lab Order: 0411354

Project: Tooele RCRA Phase II

Lab ID: 0411354-04A

Sample Type: SAMP

Matrix: Water

Client Sample ID: D-16GW001

Alt. Client ID:

Collection Date: 11/23/2004 1:11:00 P % Moist:

Test Code: C_8260B_5030B_LL_W_018

LOW LEVEL VOCs BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		1.00	µg/L	1	11/30/2004 5:52:00 PM	PERRY_041130A	RMJ
1,1,2-Trichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethene	ND		1.00	µg/L	1			
1,2-Dichloroethane	ND		1.00	µg/L	1			
1,2-Dichloropropane	ND		1.00	µg/L	1			
Benzene	ND		1.00	µg/L	1			
Carbon tetrachloride	ND		1.00	µg/L	1			
Chloroethane	ND		1.00	µg/L	1			
Chloroform	ND		1.00	µg/L	1			
cis-1,2-Dichloroethene	ND		1.00	µg/L	1			
Ethylbenzene	ND		1.00	µg/L	1			
m,p-Xylene	ND		1.00	µg/L	1			
Methylene chloride	ND		2.00	µg/L	1			
Naphthalene	ND		1.00	µg/L	1			
o-Xylene	ND		1.00	µg/L	1			
Tetrachloroethene	ND		1.00	µg/L	1			
Toluene	ND		1.00	µg/L	1			
trans-1,2-Dichloroethene	ND		1.00	µg/L	1			
Trichloroethene	ND		1.00	µg/L	1			
Vinyl chloride	ND		1.00	µg/L	1			
Surr.1,2-Dichloroethane-d4	109		70 - 130	%REC	1	11/30/2004 5:52:00 PM	PERRY_041130A	RMJ
Surr.4-Bromofluorobenzene	108		70 - 130	%REC	1			
Surr.Toluene-d8	112		70 - 130	%REC	1			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits



Analytical Services Center
International Specialists in Environmental Analysis
4493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: TRIP BLANK

Lab Order: 0411354

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/23/2004 7:00:00 A % Moist:

Lab ID: 0411354-05A

Sample Type: SAMP

Matrix: Water

Test Code: C_8260B_5030B_LL_W_018

LOW LEVEL VOCS BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		1.00	µg/L	1	11/30/2004 3:46:00 PM	PERRY_041130A	RMJ
1,1,2-Trichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethene	ND		1.00	µg/L	1			
1,2-Dichloroethane	ND		1.00	µg/L	1			
1,2-Dichloropropane	ND		1.00	µg/L	1			
Benzene	ND		1.00	µg/L	1			
Carbon tetrachloride	ND		1.00	µg/L	1			
Chloroethane	ND		1.00	µg/L	1			
Chloroform	ND		1.00	µg/L	1			
cis-1,2-Dichloroethene	ND		1.00	µg/L	1			
Ethylbenzene	ND		1.00	µg/L	1			
m,p-Xylene	ND		1.00	µg/L	1			
Methylene chloride	0.207	J	2.00	µg/L	1			
Naphthalene	ND		1.00	µg/L	1			
o-Xylene	ND		1.00	µg/L	1			
Tetrachloroethene	ND		1.00	µg/L	1			
Toluene	0.262	J	1.00	µg/L	1			
trans-1,2-Dichloroethene	ND		1.00	µg/L	1			
Trichloroethene	ND		1.00	µg/L	1			
Vinyl chloride	ND		1.00	µg/L	1			
Surr:1,2-Dichloroethane-d4	115		70 - 130	%REC	1	11/30/2004 3:46:00 PM	PERRY_041130A	RMJ
Surr:4-Bromofluorobenzene	108		70 - 130	%REC	1			
Surr:Toluene-d8	110		70 - 130	%REC	1			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits

AUTOMATED DATA REVIEW SUMMARY

Facility: SWMU 58
Event: 2004 10 SWMU 58 Vertical Profile Borings
Contract: 9T9H213C
Sample Delivery Group: 0411354

Field Contractor: Parsons Engineering Science, Salt Lake City
Laboratory Contractor: Ecology and Environment, Inc., Lancaster, NY
Data Review Contractor: Synectics, Sacramento, CA
Guidance Document: *Final Phase II RCRA Facility Investigation SWMU-58 Workplan, December 2003*

Analytical Method	Normal Samples	Field QC Samples
SW8260B	3	2

This report assesses the analytical data quality associated with the analyses listed on the preceding cover page. This assessment has been made through a combination of automated data review (ADR) and supplemental manual review, the details of which are described below. The approach taken in the review of this data set is consistent with the requirements contained in Final Phase II RCRA Facility Investigation SWMU-58 Workplan, December 2003 to the extent possible. Where definitive guidance is not provided, data has been evaluated in a conservative manner using professional judgment. In cases where two qualifiers are listed as an action, such as "J/UJ", the first qualifier applies to positive results, and the second to non-detect results.

Samples were collected by Parsons Engineering Science, Salt Lake City; analyses were performed by Ecology and Environment, Inc., Lancaster, NY and were reported under sample delivery group (SDG) 0411354. Results have been evaluated electronically using electronic data deliverables (EDDs) provided by the laboratory. The laboratory data summary forms (hard copy) have been reviewed during this effort and compared to the automated review output. Findings based on the automated data submission and manual data verification processes are detailed in the ADR narrative. The following quality control elements were evaluated during this review effort:

- Technical Holding Times
- Continuing Calibration Verification
- Method Blank Contamination
- Field Blank Contamination
- Blank Spike Accuracy
- Blank Spike Precision
- Matrix Spike Accuracy
- Matrix Spike Precision
- Surrogate Recovery
- Laboratory Duplicate Precision
- Field Duplicate Precision

A minimum of ten percent of sample and QC results were manually evaluated for compliance with project specific requirements and consistency with hard copy results. The following reports were generated during the evaluation of this data set and are presented as attachments to this report as applicable.

Data Submission Warnings – Warnings encountered during the data submission process are evaluated and their affect on data quality is discussed in the narrative.

Batch – The analytical batch report is reviewed for completeness and compliance with project specific requirements. Incomplete or non-compliant run sequences are identified and their impact on data quality are discussed in the narrative.

QC Outlier – Results exceeding the evaluation criteria are reviewed for compliance with project requirements and a minimum of ten percent of the non-compliant QC values reported electronically are verified for consistency with hard-copy values.

Qualified Results – Qualified results are evaluated for compliance with project requirements and ten percent of qualified results are verified for consistency with the QC Outlier Report.

Field Duplicate – Field duplicate comparison results are evaluated for compliance with project requirements and ten percent of values reported are verified for consistency with the hard-copy data.

Rejected Results – All rejected results are evaluated for compliance with project requirements. The reason for rejection of the data is verified against hard copy data.

Analytical deficiencies, project non-compliance issues and inconsistencies with hard copy results observed during ADR evaluation process and their impact on data quality are summarized in the ADR narrative.

Out of control events experienced by the laboratory have warranted the qualification of 0 % (0 results) and the rejection of 0 % (0 results) of the data set. These deficiencies are detailed in the referenced attachments, and discussed in the ADR narrative, where appropriate.

Released by

Date

Reason and Comment Codes

<u>Code</u>	<u>Definition</u>
C1	Diluted Out
C2	Flag Parent Only
C2S	Flag Parent (Soil); Batch (Water)
C3	No Action
C4	No QC Outliers
C5	One or both values <5x RL
C6	Recalculated Value
C7	Material Blanks
C8	Spike Insignificant
C9	No Flags; set to ND by method/cal. blank

Reasons

<u>Code</u>	<u>Definition</u>
A	Serial dilution
B	Calibration Blank - Negative
	Negative Blank
B1	Blank
B2	Calibration Blank
C	Continuing Calibration Verification
	Continuing Calibration Verification RRF
D	BS RPD
	Field Duplicate RPD
D1	Lab Replicate RPD
D2	MS RPD
E	Exceeds LinearCalibration Range
F	Hydrocarbon pattern does not match standard
G	Initial Calibration RRF
	Initial Calibration RSD
H	Test Hold Time
	Prep Hold Time
I	Internal standard
K1	Equip Blank
K2	Field Blank
K3	Trip Blank
L	LCS Recovery
M	MS Recovery
N	Blank - No Action
O	Interference check sample
P	Column RPD
Q	Material Blank
S	Surrogate
T	Receipt Temperature
TI	Tentatively Identified Compound
TR	Trace Level Detect
W	Column breakdown (pesticides)
X	Raised reporting limit
Y	Analyte not confirmed on second column

ADR CASE NARRATIVE

Laboratory ID: 0411354

Prior to loading and processing data, modifications to the project setup may be requested by the laboratory and/or contractor, and approved by the client. These modifications allow the loading of data that was not in complete agreement with the project guidance document; in some cases, variances to the project document may be in process, in others, the changes are required to accept data that had not been generated in compliance with the project guidance document. All project setup modifications are listed below:

There were no project setup modifications associated with this sample delivery group.

Chemistry Data Quality

It was found that all field sample reporting limits (RL) reported by the lab did not meet the project specified RLs required in the project setup.

Data Verification

The data verification process includes a manual review of information on the chains of custody and laboratory case narratives, a check of all rejected results and a minimum of 10 percent of sample and QC results for consistency with hard copy reports, and a cursory review of all reports generated during the automated review process. The following comments are associated with the verification process:

There were no data verification findings associated with this sample delivery group that require discussion beyond that summarized in the attached reports.

All of the reports utilized during the data verification process are provided as attachments to this report.

Batch Report

Facility: SWMU 58
Lab: ECEN
Filename: 0411354
Status: Certified - 12/16/2004
User: EvinMcKinney

Test Method: SW8260B
Prep Method: SW5030
Leach Method: NONE

<u>Test Batch</u>	<u>Prep Batch</u>	<u>Leach Batch</u>	<u>Location</u>	<u>Matrix</u>	<u>Field Sample ID</u>	<u>Lab Sample ID</u>	<u>Test Date and Time</u>	<u>Sample Type</u>
PERY41130A	0411304p1r	NA	LABQC	WQ		CCV1078348	11/30/2004 12:55:00PI	CV1
	0411304p1r	NA	LABQC	WQ		LCS1845211	11/30/2004 2:15:00PM	BS1
	0411304p1r	NA	LABQC	WQ		MB1845211	11/30/2004 2:46:00PM	LB1
	0411304p1r	NA	FIELDQC	WQ	TRIP BLANK	0411354-05	11/30/2004 3:46:00PM	TB1
	0411304p1r	NA	D-12	WG	D-12GW001	0411354-01	11/30/2004 4:18:00PM	N1
	0411304p1r	NA	D-13	WG	D-13GW001	0411354-02	11/30/2004 4:49:00PM	N1
	0411304p1r	NA	D-13	WG	D-13FD001	0411354-03	11/30/2004 5:21:00PM	FD1
	0411304p1r	NA	D-16	WG	D-16GW001	0411354-04	11/30/2004 5:52:00PM	N1
	0411304p1r	NA	D-16	WG	D-16GW001	0411354-04	11/30/2004 7:01:00PM	MS1
	0411304p1r	NA	D-16	WG	D-16GW001	0411354-04	11/30/2004 7:32:00PM	SD1

Detected Results

Facility: SWMU 58
Event: 2004 10 SWMU 58 Vertical Profile Borings
Reference: ISSS-539-01

SDG: 0411354

Volatile Organic Compounds by Capillary GC/MS

<u>Test/Leach</u>	<u>Matrix</u>	<u>Field Sample ID</u>	<u>Type</u>	<u>Analyte</u>	<u>RL</u>	<u>Lab Result</u>	<u>Qualified Result</u>	<u>Units</u>	<u>Reason</u>
SW8260B/NONE	WG	D-13FD001	FD	Chloroform	1.0	0.20 J	0.20 J	UG/L	TR
SW8260B/NONE	WG	D-13GW001	N	Chloroform	1.0	0.19 J	0.19 J	UG/L	TR
SW8260B/NONE	WQ	TRIP BLANK	TB	Methylene Chloride	2.0	0.21 J	0.21 J	UG/L	TR
SW8260B/NONE	WQ	TRIP BLANK	TB	Toluene	1.0	0.26 J	0.26 J	UG/L	TR

QC Outliers

Facility: SWMU 58
Event: 2004 10 SWMU 58 Vertical Profile Borings
Reference: 9T9H213C

SDG 0411354

<u>Test/Leach</u>	<u>QCElement</u>	<u>Sample</u>	<u>Type</u>	<u>Dil'n</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Warning</u> <u>Limits</u>	<u>Control</u> <u>Limits</u>	<u>Qualifier</u>	<u>Reason</u>	<u>Cmnt.</u>
SW8260B/NONE	Trip Blk. Cont.	TRIP BLANK	TB1	1.00	Methylene Chloride	0.21	UG/L	< 0.128	< 2	U / None	K3	
SW8260B/NONE	Trip Blk. Cont.	TRIP BLANK	TB1	1.00	Toluene	0.26	UG/L	< 0.119	< 1	U / None	K3	

Qualified Results

Facility: SWMU 58
Event: 2004 10 SWMU 58 Vertical Profile Borings
Reference: ISSS-539-01

SDG: 0411354

Volatile Organic Compounds by Capillary GC/MS

<u>Test/Leach</u>	<u>Matrix</u>	<u>Field Sample ID</u>	<u>Type</u>	<u>Analyte</u>	<u>RL</u>	<u>Lab Result</u>	<u>Qualified Result</u>	<u>Units</u>	<u>Reason</u>
SW8260B/NONE	WG	D-13FD001	FD	Chloroform	1.0	0.20 J	0.20 J	UG/L	TR
SW8260B/NONE	WG	D-13GW001	N	Chloroform	1.0	0.19 J	0.19 J	UG/L	TR
SW8260B/NONE	WQ	TRIP BLANK	TB	Methylene Chloride	2.0	0.21 J	0.21 J	UG/L	TR
SW8260B/NONE	WQ	TRIP BLANK	TB	Toluene	1.0	0.26 J	0.26 J	UG/L	TR

DATA MANAGEMENT NARRATIVE

Laboratory ID: 0411354

Data Submission

The data submission process incorporates a series of stored procedures designed to identify valid value (VVL), logical (LE), and project specific errors (PSE) in electronic data deliverables (EDD). Automated data review (ADR) is most efficient when data generators correct all errors. Dependent primarily upon the electronic reporting capabilities of the data generator, the severity of the logical and project specific errors listed below have been reduced to warnings. A warning log is generated with each data submission and is presented as an attachment to this report. A brief explanation of each error encountered for this data set and the potential impact on data quality is summarized below.

1. Project Specific Error (PSE) spPSE01L_Invalid_Units_QC

This PSE occurs when laboratory quality control samples are reported with units of percent as opposed to true values. This inconsistency does not affect data quality, unless the submittal is scheduled for delivery to the AFCEE in accordance with the ERPIMS 4.0 specification. Automated data review can be performed for laboratory QC when units are reported in percent or in concentration units. However, to avoid this warning on future submittals, the laboratory would need to report these values in units of concentration (i.e., ug/L).

2. Logical Error (LE) spLE01_QAPPFLAGS_F

This LE warning occurs when there are positive results less than the RL and associated QAPPFLAGS are not "F". This requirement is only necessary if the project is an AFCEE project or if the data is to be submitted to ERPIMS. To avoid this warning in the future, apply QAPPFLAGS of "F" whenever the detected result is less than the RL.

A detailed description of the stored procedures utilized during the data submission process is provided as an attachment to this report (Submission Warnings).

Submission Warnings

Facility: SWMU 58
Data Generator: ECEN
File Name: W:\2004\0411354\0411354.LB1

PSE

<u>Query Name</u>	<u>Finding</u>	<u>Record Count</u>
spPSE01L_Invalid_Units_QC	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is CV/ORG; UNITS is PERCENT	21
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is MS/ORG; UNITS is PERCENT	4
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is MS/STD; UNITS is PERCENT	3
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is BS/ORG; UNITS is PERCENT	4
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is SD/STD; UNITS is PERCENT	3
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is BS/STD; UNITS is PERCENT	3
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is N/STD; UNITS is PERCENT	9
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is SD/ORG; UNITS is PERCENT	4
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is LB/STD; UNITS is PERCENT	3
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is CV/STD; UNITS is PERCENT	3
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is TB/STD; UNITS is PERCENT	3
	ANMCODE is SW8260B; LCHMETH is NONE; Matrix Class is W; SACODE/PRCCODE is FD/STD; UNITS is PERCENT	3

VVL

<u>Query Name</u>	<u>Finding</u>	<u>Record Count</u>
spLE01_QAPPFLAGS_F	PARVQ is TR; PARVAL is 0.2620; RL is 1.0000; QAPPFLAGS is J	1
	PARVQ is TR; PARVAL is 0.1930; RL is 1.0000; QAPPFLAGS is J	1
	PARVQ is TR; PARVAL is 0.2070; RL is 2.0000; QAPPFLAGS is J	1
	PARVQ is TR; PARVAL is 0.1950; RL is 1.0000; QAPPFLAGS is J	1

Submission Warnings

Facility: SWMU 58
Data Generator: ECEN
File Name: W:\2004\0411354\0411354.LB1

Total Record Count:	189
Error Count:	0
Warning Count:	67

APPENDIX G



406 West South Jordan Parkway, Suite 300 • South Jordan, Utah 84095 • (801) 572-5999 • Fax (801) 572-9069

Memorandum

To: Dean Reynolds, TEAD; Larry McFarland, TEAD
Copy: Maryellen Mackenzie, USACE; Carl Cole, USACE; Doug Mackenzie, USACE; Richard Jirik, Parsons
From: Jan Barbas, Parsons; Jeff Bigelow, Parsons
Date: Wednesday, November 10, 2004
Subject: TEAD SWMU-58 RFI - Waste Management

This letter is to recommend disposition of the 14 drums summarized in Table One, attached. The waste was generated in association with the drilling of well D-13.

Fourteen drum of saturated soil cutting waste was generated and one sample was taken for each five drums. Therefore three samples were taken and labeled IDW08 – IDW10. Samples were analyzed for TCLP VOCs. Analysis was conducted by Ecology and Environment, Inc, Lancaster NY, a Utah Certified laboratory.

Results have been received as data packages and electronic data deliverables. Parsons has reviewed the data and found QC to be acceptable. Analytical results and case narrative are attached in portable document format.

Listed Wastes Analysis:

No constituents were detected. Therefore no listed waste codes should be applied.

Characteristic Wastes Analysis:

The waste is known to be primarily soil. Therefore generator's reasonable knowledge may be used to exclude the characteristics of ignitability, reactivity and corrosivity.

No constituents were. Therefore no characteristic waste codes (40 CFR Part 261.24) should be applied.

Disposition:

Parsons recommends that this waste be returned to the site for disposal on the ground surface.

Parsons will arrange to dispose of the waste per your written instructions.



Table One

Container ID					Owner		Sample?	Sample Comment	Container Size	Source	Contents	Open Date	Close Date	Accumulation Start Date	Disposition Due	Determination	Disposition	Disposition Date
PARSNZ0428101					JJB		YES		55-GALLON	DRILL CUTTINGS, D-13	SOIL	10/7/2004	10/7/2004	10/7/2004	12/26/2004			
Sites		Location	Move Date	Move Date	Move Date													
D-13		UID-90	10/7/2004	P4009	10/7/2004													
		D-13	10/7/2004															
Container ID					Owner		Sample?	Sample Comment	Container Size	Source	Contents	Open Date	Close Date	Accumulation Start Date	Disposition Due	Determination	Disposition	Disposition Date
PARSNZ0428102					JJB		YES		55-GALLONS	DRILL CUTTINGS, D-13	SOIL	10/7/2004	10/7/2004	10/7/2004	12/26/2004			
Sites		Location	Move Date	Move Date	Move Date													
D-13		UID-90	10/7/2004	P4009	10/7/2004													
		D-13	10/7/2004															
Container ID					Owner		Sample?	Sample Comment	Container Size	Source	Contents	Open Date	Close Date	Accumulation Start Date	Disposition Due	Determination	Disposition	Disposition Date
PARSNZ0428103					JJB		YES		55-GALLON	DRILL CUTTINGS, D-13	SOIL	10/7/2004	10/7/2004	10/7/2004	12/26/2004			
Sites		Location	Move Date	Move Date	Move Date													
D-13		UID-90	10/7/2004	P4009	10/7/2004													
		D-13	10/7/2004															
Container ID					Owner		Sample?	Sample Comment	Container Size	Source	Contents	Open Date	Close Date	Accumulation Start Date	Disposition Due	Determination	Disposition	Disposition Date
PARSNZ0428104					JJB		YES		55-GALLON	DRILL CUTTINGS, D-13	SOIL	10/7/2004	10/7/2004	10/7/2004	12/26/2004			
Sites		Location	Move Date	Move Date	Move Date													
D-13		D-13	10/7/2004															
		UID-90	10/7/2004	P4009	10/7/2004													
Container ID					Owner		Sample?	Sample Comment	Container Size	Source	Contents	Open Date	Close Date	Accumulation Start Date	Disposition Due	Determination	Disposition	Disposition Date
PARSNZ0428105					JJB		YES		55-GALLON	DRILL CUTTINGS, D-13	SOIL	10/7/2004	10/7/2004	10/7/2004	12/26/2004			
Sites		Location	Move Date	Move Date	Move Date													
D-13		D-13	10/7/2004															
		UID-90	10/7/2004	P4009	10/7/2004													
Container ID					Owner		Sample?	Sample Comment	Container Size	Source	Contents	Open Date	Close Date	Accumulation Start Date	Disposition Due	Determination	Disposition	Disposition Date
PARSNZ0428106					JJB		YES		55-GALLON	DRILL CUTTINGS, D-13	SOIL	10/7/2004	10/7/2004	10/7/2004	12/26/2004			
Sites		Location	Move Date	Move Date	Move Date													
D-13		D-13	10/7/2004															
		UID-90	10/7/2004	P4009	10/7/2004													
Container ID					Owner		Sample?	Sample Comment	Container Size	Source	Contents	Open Date	Close Date	Accumulation Start Date	Disposition Due	Determination	Disposition	Disposition Date
PARSNZ0428501					JJB		YES		55-GALLON	DRILL CUTTINGS, D-13	SOIL	10/11/2004	10/11/2004	10/11/2004	12/30/2004			
Sites		Location	Move Date	Move Date	Move Date													
D-13		UID-90	10/13/2004	P4010	10/13/2004													
		D-13	10/11/2004															
Container ID					Owner		Sample?	Sample Comment	Container Size	Source	Contents	Open Date	Close Date	Accumulation Start Date	Disposition Due	Determination	Disposition	Disposition Date
PARSNZ0428502					JJB		YES		55-GALLON	DRILL CUTTINGS, D-13	SOIL	10/11/2004	10/11/2004	10/11/2004	12/30/2004			
Sites		Location	Move Date	Move Date	Move Date													
D-13		UID-90	10/13/2004	P4010	10/13/2004													
		D-13	10/11/2004															

Container ID	Owner				Sample?	Sample Comment	Container Size	Source	Contents	Open Date	Close Date	Accumulation Start Date	Disposition Due	Determination	Disposition	Disposition Date
PARSNZ0428503	JJB				YES		55-GALLON	DRILL CUTTINGS, D-13	SOIL	10/11/2004	10/11/2004	10/11/2004	12/30/2004			
Sites		Location	Move Date	Move Date	Move Date											
D-13		UID-90	10/13/2004	P4010	10/13/2004											
		D-13	10/11/2004													

Container ID	Owner				Sample?	Sample Comment	Container Size	Source	Contents	Open Date	Close Date	Accumulation Start Date	Disposition Due	Determination	Disposition	Disposition Date
PARSNZ0428504	JJB				YES		55-GALLON	DRILL CUTTINGS, D-13	SOIL	10/11/2004	10/11/2004	10/11/2004	12/30/2004			
Sites		Location	Move Date	Move Date	Move Date											
D-13		UID-90	10/13/2004	P4010	10/13/2004											
		D-13	10/11/2004													

Container ID	Owner				Sample?	Sample Comment	Container Size	Source	Contents	Open Date	Close Date	Accumulation Start Date	Disposition Due	Determination	Disposition	Disposition Date
PARSNZ0428505	JJB				YES		55-GALLON	DRILL CUTTINGS, D-13	SOIL	10/11/2004	10/11/2004	10/11/2004	12/30/2004			
Sites		Location	Move Date	Move Date	Move Date											
D-13		UID-90	10/13/2004	P4010	10/13/2004											
		D-13	10/11/2004													

Container ID	Owner				Sample?	Sample Comment	Container Size	Source	Contents	Open Date	Close Date	Accumulation Start Date	Disposition Due	Determination	Disposition	Disposition Date
PARSNZ0428506	JJB				YES		55-GALLON	DRILL CUTTINGS, D-13	SOIL	10/11/2004	10/11/2004	10/11/2004	12/30/2004			
Sites		Location	Move Date	Move Date	Move Date											
D-13		UID-90	10/13/2004	P4010	10/13/2004											
		D-13	10/11/2004													

Container ID	Owner				Sample?	Sample Comment	Container Size	Source	Contents	Open Date	Close Date	Accumulation Start Date	Disposition Due	Determination	Disposition	Disposition Date
PARSNZ0428507	JJB				YES		55-GALLON	DRILL CUTTINGS, D-13	SOIL	10/11/2004	10/11/2004	10/11/2004	12/30/2004			
Sites		Location	Move Date	Move Date	Move Date											
D-13		UID-90	10/13/2004	P4010	10/13/2004											
		D-13	10/11/2004													

Container ID	Owner				Sample?	Sample Comment	Container Size	Source	Contents	Open Date	Close Date	Accumulation Start Date	Disposition Due	Determination	Disposition	Disposition Date
PARSNZ0428508	JJB				YES		55-GALLON	DRILL CUTTINGS, D-13	SOIL	10/11/2004	10/11/2004	10/11/2004	12/30/2004			
Sites		Location	Move Date	Move Date	Move Date											
D-13		UID-90	10/13/2004	P4010	10/13/2004											
		D-13	10/11/2004													

10/11/2004

From: McFarland, Larry [larry.mcfarland@us.army.mil]
Sent: Monday, November 15, 2004 7:53 AM
To: Barbas, Jan; Reynolds, Dean; McFarland, Larry
Cc: doug.d.mackenzie@usace.army.mil; Cole, Carl; Maryellen.Mackenzie@usace.army.mil; Jirik, Richard; Bigelow, Jeff
Subject: RE: TEAD Waste Management
Jan/Jeff

The Tooele Army Depot Environmental Office and reviewed the analytical provided for soil cuttings generated from monitoring well D-13. We concur with your recommendation to return the soil to sell site D-16 for disposal on the surface surrounding the wellhead. Please provide TEAD with a schedule for completing the work, and a list of those drums returned to the site after completion. If you should have any questions, please gie me a call.

Thanks

Larry McFarland
Environmental Office, SJMTE-CS-EO
1 Tooele Army Depot, Building 8
Tooele, Utah 84074-5003
Phone (435) 833-3235 Fax (435) 833-2839
larry.mcfarland@us.army.mil
mcfarlal@emh2.tooele.army.mil



analytical services center

International Specialists in Environmental Analysis

4493 Walden Avenue, Lancaster, New York 14086

Tel: 716/685-8080, 800/327-6534 • Fax: 716/685-0852 • Email: asc@ene.com



November 02, 2004

Jan Barbas
Parsons Engineering Science, Inc.
406 W. South Jordan Pkwy.
Suite 300
South Jordan, Utah 840953944

RE: Tooele RCRA Phase II
Work Order No.: **0410184**

Dear Jan Barbas,

Analytical Services Center received 3 samples on Friday, October 15, 2004 for the analyses presented in the following report.

The ASC certifies that the test results in this report meet all requirements of NELAC for which it holds certification except as noted in this narrative and/or as flagged in the report.

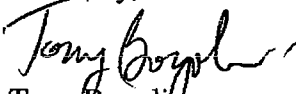
The ASC is accredited in the Fields of Testing Potable water (SDWA), Solid and Chemical Materials (Solid Hazardous Wastes, RCRA), Water (CWA and other non-potable water) and Air and Emissions. Its primary accrediting authorities are New York State Department of Health and Florida Department of Health. The particular analytes/methods certified may be ascertained by requesting the laboratory's current certificates from your laboratory Project Manager .

You will receive an invoice under separate cover.

E & E will retain the samples addressed in this report for 30 days, unless otherwise instructed by the client. If additional storage is requested, the storage fee is \$1.00 per sample container per month, to accrue until the client authorizes sample destruction.

This report is not to be reproduced, except in full, without the written approval of the laboratory.

Sincerely,


Tony Bogoliz

Project Manager

CC:

Enclosures as noted



a division of
ecology and environment, inc.

Analytical Services Center

International Specialists in Environmental Analysis

Lancaster New York 14086

Phone: (716) 685-8080 Fax: (716) 685-0852

Laboratory Results

NYS ELAP ID#: 10486

CLIENT: Parsons Engineering Science, Inc.

Project: Tooele RCRA Phase II

Lab Order: 0410184

Date Received: 10/15/2004

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Alt. Client Id	Collection Date
0410184-01A	IDW08		10/7/2004 9:00:00 AM
0410184-02A	IDW09		10/11/2004 9:00:00 AM
0410184-03A	IDW10		10/11/2004 12:00:00 PM



Analytical Services Center

International Specialists in Environmental Analysis

4493 Walden Avenue

Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: PARSONS ENGINEERING SCIENCE, INC.

Project: Tooele RCRA Phase II

Lab Order: 0410184

CASE NARRATIVE

GCMS VOLATILES

A DB 624 column and a trap packed with OV-1, Tenax, silica gel and activated charcoal was used for the volatile analysis.

TCLP analysis

All samples were analyzed within hold time.

Calibration and Tunes

All initial and continuing calibrations were acceptable.

There were no manual integrations required.

QC

All surrogate recoveries were within acceptable limits.

All blank analyses were acceptable.

All laboratory control sample/duplicate (LCS/LCSD) recoveries and RPD values were acceptable.

All internal standard area responses were acceptable.

Tony Bogolin

Project Manager

November 2, 2004



Analytical Services Center
 International Specialists in Environmental Analysis
 Lancaster New York 14086
 Phone: (716) 685-8080 Fax: (716) 685-0852

Laboratory Results

NYS ELAP ID#: 10486
 Phone: (716) 685-8080

Order: 0410184
Client: Parsons Engineering Science, Inc.
Project: Tooele RCRA Phase II

DATES SUMMARY REPORT

B) Sample ID (CLIENT)	Matrix	Test Name	Collection Date	Received Date	HT (Days) / HT Expire	Analized* - Analysis/BatchID	Type	DF	#Analytes	F
0184-01A	IDW08	Sediment TCLP Ext for VOCs by M 1311	10/7/2004 9:00:00 AM	10/15/2004 9:00:00 AM	14:C 10/21/2004 9:00:00 AM	10/18/2004 9:31:39 AM 200404050	NA	NA	NA	
		TCLP Volatile Organic Compounds by Method 8260B			14:T 11/2/2004 8:52:13 AM	10/29/2004 3:48:00 PM 1052392	SAMP	10	10	
B) Sample ID (CLIENT)	Matrix	Test Name	Collection Date	Received Date	HT (Days) / HT Expire	Analized* - Analysis/BatchID	Type	DF	#Analytes	F
0184-02A	IDW09	Sediment TCLP Ext for VOCs by M 1311	10/11/2004 9:00:00 AM	10/15/2004 9:00:00 AM	14:C 10/25/2004 9:00:00 AM	10/18/2004 9:31:39 AM 200404050	NA	NA	NA	
		TCLP Volatile Organic Compounds by Method 8260B			14:T 11/2/2004 8:52:13 AM	10/29/2004 4:18:00 PM 1052393	SAMP	10	10	
B) Sample ID (CLIENT)	Matrix	Test Name	Collection Date	Received Date	HT (Days) / HT Expire	Analized* - Analysis/BatchID	Type	DF	#Analytes	F
0184-03A	IDW10	Sediment TCLP Ext for VOCs by M 1311	10/11/2004 12:00:00 PM	10/15/2004 9:00:00 AM	14:C 10/25/2004 12:00:00 PM	10/18/2004 9:31:39 AM 200404050	NA	NA	NA	
		TCLP Volatile Organic Compounds by Method 8260B			14:T 11/2/2004 8:52:13 AM	10/29/2004 4:48:00 PM 1052394	SAMP	10	10	

From: C-Collection / R- Receipt(VTSR) / P-Prep / T-TCLP Prep

"Analized" reflects the analysis date and time or injection time for analytical tests. For preparation tests "Analized" reflects the start of the preparation except when "AFCEE criteria used"; flag indicates date of time of completion of the preparation.

TCLP/SPLP Extractions and subsequent preparation tests..."Analized" reflects the date of TCLP/SPLP Extraction/preparation. For Re-extracted (RE) samples: Preparation tests completed dates reflects extraction from the original sample leachate unless an "RE" Sample exists for the extraction (tumble) test.



Analytical Services Center
International Specialists in Environmental Analysis
Lancaster New York 14086
Phone: (716) 685-8080 Fax: (716) 685-0852

Laboratory Results

NYS ELAP ID#: 10486

Client: Parsons Engineering Science, Inc.
Project: Tooele RCRA Phase II
Work Order: 0410184

Method References

GCMS Volatiles

TCLP VOCs by Method 8260B

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes 1A, 1B, 1C & Volume 2. (Includes all Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.

SAMPLE RECEIPT RECORDS

CHAIN OF CUSTODY PARSONS COC ID: 560	Project Name:	Tooele Industrial Area	Contractor:	Parsons - SLC	Parsons Point of Contact: Jan Barbas
	Project Manager:	Ed Staes	Installation:	TEAD	406 W. South Jordan Parkway Suite 300
	Sample Coordinator:	Jeff Bigelow	Sample Program:	Shallow Soil Sampling	South Jordan, Utah 84095 (801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End Depth	Total Conts.
IDW	IDW08	IDW08	SD	G	N	1	10-7-04	09:00	JJB	-	-	1
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
TCLPVOC		ECEN	2	1								

IDW soil cuttings sample

*from containers PARS 1020428101-05
(350-365 ft bys - D-13)*

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
<i>Jeff May</i>	10-14-04 12:00	<i>John Smith</i>	10/15/04 9:00

CHAIN OF CUSTODY PARSONS COC ID: 561	Project Name:	Tooele Industrial Area	Contractor:	Parsons - SLC	Parsons Point of Contact: Jan Barbas
	Project Manager:	Ed Staes	Installation:	TEAD	406 W. South Jordan Parkway Suite 300
	Sample Coordinator:	Jeff Bigelow	Sample Program:	Shallow Soil Sampling	South Jordan, Utah 84095 (801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Cont
IDW	IDW09	IDW09	SD	G	N	1	10-11-04	09:00	JJB	-	-	1
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
TCLPVOC		ECEN	2	1								

IDW sample for containers
 PARSN20428106
 PARSN20428501-04
 (365-374ft bgs, D-13)

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
<i>[Signature]</i>	10-14-04 12:00	<i>[Signature]</i>	10/15/04 9:00

CHAIN OF CUSTODY

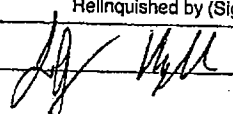
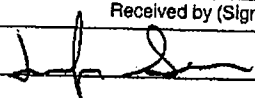
PARSONS

COC ID: 562

Project Name:	Tooele Industrial Area	Contractor:	Parsons - SLC	Parsons Point of Contact: Jan Barbas
Project Manager:	Ed Staas	Installation:	TEAD	406 W. South Jordan Parkway
Sample Coordinator:	Jeff Bigelow	Sample Program:	Shallow Soil Sampling	Suite 300
				South Jordan, Utah 84095
				(801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Cont
IDW	IDW10	IDW10	SD	G	N	1	10-11-04	12:00	JJB	-	-	1
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
TCLPVOC		ECEN	2	1				IDW soil cuttings sample for containers.				

PARSON20428505-08
(377-385 ft bgs, D-13)

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	10-14-04 12:00		10/15/04 9:00



Cooler Receipt Form

No. of Packages:	1	Date Received:	10/15/04
Package Receipt No.:	14714	Project or Site Name:	
Client:	Parsons		

A. Preliminary Examination and Receipt Phase		Circle One		
1. Did coolers come with airbill or packing slip?		Yes	No	NA
Circle carrier here and print airbill number below: <u>Fed Ex</u> Airborne Client Other _____				
Shipped as high hazard or dangerous goods?		Yes	No	NA
2. Did cooler(s) have custody seals?		Yes	No	NA
3. Were custody seals unbroken and intact on receipt?		Yes	No	NA
4. Were custody seals dated and signed?		Yes	No	NA
5. How was package secured? <input type="checkbox"/> Not secured <input type="checkbox"/> Fiberglass Tape <input type="checkbox"/> <u>clear tape</u>				

B. Unpacking Phase					
6. Date cooler(s) opened: <u>10/15/04</u>	Cooler(s) opened by: <u>[Signature]</u> (Signature)				
7. Was a temperature blank vial included inside cooler(s)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA				
Please Record Temperature Vial or Cooler Temperature for Each Cooler, Range (2° - 6°C)*					
Airbill No.	Temp. °C	Airbill No.	Temp. °C	Airbill No.	Temp. °C
845727851211	4.0°				
Thermometer No.: <u>220</u>	Correction Factor: <u>0.0</u>	*If temperature is outside of acceptable range, prepare a PM Notification form indicating affected containers.			
8. Were the C-O-C forms received?		Yes	No	NA	
C-O-C forms numbers if present:					
9. Was enough packing material used in cooler(s)?		Yes	No	NA	
Type of material: Vermiculite <u>Bubble Wrap</u> Other _____					
10. If cooling was required, what was the means (type ice) of cooling used: <u>Wet</u> Dry Blue Other				NA	
11. Were all containers sealed in separate plastic bags?		Yes	No	NA	
12. Did all containers arrive unbroken and in good condition?		Yes	No	NA	
13. Interim storage area if not logged: _____					
In: Date _____ Time _____	Signature _____				
Out: Date _____ Time _____	Signature _____				

C. Login Phase	
Samples Logged in By Signature: <u>D. J. Moormeans</u>	Date: <u>10-15-04</u>
14. Were all container labels complete (e.g. date, time preserved)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
15. Were all C-O-C forms filled out properly in black ink and signed?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
16. Did the C-O-C form agree with containers received?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
17. Were the correct containers used for the tests requested?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
18. Were the correct preservatives listed on the sample labels?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA <input type="checkbox"/>
19. Was a sufficient sample volume sent for the tests requested?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
20. Were all volatile samples received without headspace?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA <input type="checkbox"/>

RESULTS SUMMARY



ASG
International Specialists in Environmental Analysis
4493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: IDW08

Lab Order: 0410184

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 10/7/2004 9:00:00 AM % Moist:

Lab ID: 0410184-01A

Sample Type: SAMP

Matrix: Sediment

Test Code: 1_1311_8260B_L

TCLP VOLATILE ORGANIC COMPOUNDS BY METHOD 8260B

Method: SW8260B

Prep Method: SW1311

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1-Dichloroethene	ND		0.0500	mg/L	10	10/29/2004 3:48:00 PM	NILES_041029D	DWW
1,2-Dichloroethane	ND		0.0500	mg/L	10			
2-Butanone	ND		0.100	mg/L	10			
Benzene	ND		0.0500	mg/L	10			
Carbon tetrachloride	ND		0.0500	mg/L	10			
Chlorobenzene	ND		0.0500	mg/L	10			
Chloroform	ND		0.0500	mg/L	10			
Tetrachloroethene	ND		0.0500	mg/L	10			
Trichloroethene	ND		0.0500	mg/L	10			
Vinyl chloride	ND		0.100	mg/L	10			
Surr:1,2-Dichloroethane-d4	90		82 - 124	%REC	10	10/29/2004 3:48:00 PM	NILES_041029D	DWW
Surr:4-Bromofluorobenzene	96		87 - 115	%REC	10			
Surr:Toluene-d8	96		85 - 115	%REC	10			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits



ANALYTICAL SERVICES CENTER

International Specialists in Environmental Analysis

4493 Walden Avenue

Lancaster, New York 14086

LABORATORY RESULTS

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: IDW09

Lab Order: 0410184

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 10/11/2004 9:00:00 A % Moist:

Lab ID: 0410184-02A

Sample Type: SAMP

Matrix: Sediment

Test Code: 1_1311_8260B_L

TCLP VOLATILE ORGANIC COMPOUNDS BY METHOD 8260B

Method: SW8260B

Prep Method: SW1311

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1-Dichloroethene	ND		0.0500	mg/L	10	10/29/2004 4:18:00 PM	NILES_041029D	DWW
1,2-Dichloroethane	ND		0.0500	mg/L	10			
2-Butanone	ND		0.100	mg/L	10			
Benzene	ND		0.0500	mg/L	10			
Carbon tetrachloride	ND		0.0500	mg/L	10			
Chlorobenzene	ND		0.0500	mg/L	10			
Chloroform	ND		0.0500	mg/L	10			
Tetrachloroethene	ND		0.0500	mg/L	10			
Trichloroethene	ND		0.0500	mg/L	10			
Vinyl chloride	ND		0.100	mg/L	10			
Surr:1,2-Dichloroethane-d4	91		82 - 124	%REC	10	10/29/2004 4:18:00 PM	NILES_041029D	DWW
Surr:4-Bromofluorobenzene	97		87 - 115	%REC	10			
Surr:Toluene-d8	97		85 - 115	%REC	10			

Definitions:

* - Recovery outside QC Limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits



ANGL
International Specialists in Environmental Analysis
4493 Walden Avenue
Lancaster, New York 14086

NYS ELAP ID#: 10486
Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: IDW10

Lab Order: 0410184

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 10/11/2004 12:00:00 P % Moist:

Lab ID: 0410184-03A

Sample Type: SAMP

Matrix: Sediment

Test Code: 1_1311_8260B_L

TCLP VOLATILE ORGANIC COMPOUNDS BY METHOD 8260B

Method: SW8260B

Prep Method: SW1311

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1-Dichloroethene	ND		0.0500	mg/L	10	10/29/2004 4:48:00 PM	NILES_041029D	DWW
1,2-Dichloroethane	ND		0.0500	mg/L	10			
2-Butanone	ND		0.100	mg/L	10			
Benzene	ND		0.0500	mg/L	10			
Carbon tetrachloride	ND		0.0500	mg/L	10			
Chlorobenzene	ND		0.0500	mg/L	10			
Chloroform	ND		0.0500	mg/L	10			
Tetrachloroethene	ND		0.0500	mg/L	10			
Trichloroethene	ND		0.0500	mg/L	10			
Vinyl chloride	ND		0.100	mg/L	10			
Surr:1,2-Dichloroethane-d4	91		82 - 124	%REC	10	10/29/2004 4:48:00 PM	NILES_041029D	DWW
Surr:4-Bromofluorobenzene	95		87 - 115	%REC	10			
Surr:Toluene-d8	97		85 - 115	%REC	10			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

NC - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. UT3213820894		Manifest Document No. 14009		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.					
3. Generator's Name and Mailing Address Tooele Army Depot Environmental Office, SIMTE-CS-E0 Building 8, Attn: Dean Reynolds, Tooele, UT 84074						A. State Manifest Document Number							
4. Generator's Phone ()						B. State Generator's ID							
5. Transporter 1 Company Name MP Environmental						C. State Transporter's ID							
6. US EPA ID Number CAT000624247						D. Transporter's Phone (435) 843-7802							
7. Transporter 2 Company Name						E. State Transporter's ID							
8. US EPA ID Number						F. Transporter's Phone							
9. Designated Facility Name and Site Address Tooele Army Depot Environmental Office, SIMTE-CS-E0 Utah Industrial Depot, Jade St. and C Ave., Tooele, UT 84074						G. State Facility's ID							
10. US EPA ID Number UT3213820894						H. Facility's Phone (801) 971-8415							
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)						12. Containers		13. Total Quantity		14. Unit Wt/Vol		15. Waste No.	
a. <input type="checkbox"/> HM Hazardous Waste Solid, N.O.S. (TCE), 9, Class NA3077, PGIII PARSNZO428101 thru 06						No. 6 DM		4800		est. P		F001 F002	
b. <input type="checkbox"/>													
c. <input type="checkbox"/>													
d. <input type="checkbox"/>													
J. Additional Descriptions for Materials Listed Above a. Trichloroethylene						K. Handling Codes for Wastes Listed Above D-13							
15. Special Handling Instructions and Additional Information Emergency Contact - Tooele Army Depot Fire Department (435) 833-2015													
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.													
Printed/Typed Name Mark D Reynolds						Signature Mark D Reynolds		Month Day Year 11/07/04					
17. Transporter 1 Acknowledgement of Receipt of Materials						Signature Monty Monserret		Month Day Year 11/07/04					
18. Transporter 2 Acknowledgement of Receipt of Materials						Signature		Month Day Year					
Printed/Typed Name													
19. Discrepancy Indication Space													
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.													
Printed/Typed Name David Woodward						Signature David Woodward		Month Day Year 11/07/04					

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. UT3213820894	Manifest Document No. P.4.0.1.0	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address Tooele Army Depot Environmental Office SMATE-CS-EO, Bldg. 8, Attn: Dean Reynolds Tooele, UT 84074 (84074) (435) 833-3504				A. State Manifest Document Number		
5. Transporter 1 Company Name M P Environmental				B. State Generator's ID		
6. US EPA ID Number CAT000624247				C. State Transporter's ID		
7. Transporter 2 Company Name				D. Transporter's Phone (435) 843-7802		
8. US EPA ID Number				E. State Transporter's ID		
9. Designated Facility Name and Site Address Tooele Army Depot Environmental Office SMATE-CS-EO, Building 8, Attn: Dean Reynolds Tooele, UT 84074				F. Transporter's Phone		
10. US EPA ID Number UT3213820894				G. State Facility's ID		
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)				H. Facility's Phone (435) 833-3504		
12. Containers				13. Total Quantity		
No. Type				Unit Wt/Vol		
a. Hazardous Waste Solid, N.O.S. (TCE) Class NA3077, pg III				est. P		
b. Drum #15 PARSNZ0428501 thru 08				F001 F002		
c.						
d.						
J. Additional Descriptions for Materials Listed Above				K. Handling Codes for Wastes Listed Above		
a. Trichloroethylene				D-13		
15. Special Handling Instructions and Additional Information Emergency Contact - Tooele Army Depot Fire Department (435) 833-2015						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						
Printed/Typed Name Larry McFarland				Signature Larry McFarland		Month Day Year 11/01/04
17. Transporter 1 Acknowledgement of Receipt of Materials				Month Day Year		
Printed/Typed Name JOSEPH SHINDER FOR MP				Signature Joseph Shinder		Month Day Year 11/01/04
18. Transporter 2 Acknowledgement of Receipt of Materials				Month Day Year		
Printed/Typed Name				Signature		Month Day Year
19. Discrepancy Indication Space						
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.						
Printed/Typed Name Mark D Reynolds				Signature Mark D Reynolds		Month Day Year 11/01/04

APPENDIX H

PARSONS

406 West South Jordan Parkway, Suite 300 • South Jordan, Utah 84095 • (801) 572-5999 • Fax (801) 572-9069

Memorandum

To: Dean Reynolds, TEAD; Larry McFarland, TEAD
Copy: Maryellen Mackenzie, USACE; Carl Cole, USACE; Doug Mackenzie, USACE; Richard Jirik, Parsons; Jeff Bigelow, Parsons
From: Jan Barbas, Parsons
Date: Wednesday, November 17, 2004
Subject: TEAD SWMU-58 RFI - Waste Management

This letter is to recommend disposition of the contents of the Baker tank summarized in Table One. The waste was generated in association with equipment decontamination and development of wells D-12, D-13 and D-16.

The Baker tank sample was labeled IDW11. IDW11 was analyzed for total VOCs. Analysis was conducted by Ecology and Environment, Inc, Lancaster NY, a Utah Certified laboratory.

Results have been received as data packages and electronic data deliverables. Parsons has reviewed the data and found QC to be acceptable. Analytical results and case narrative are appended.

Listed Wastes Analysis:

Benzene at 0.590 µg/L, ethylbenzene at 23.3 µg/L, m,p-xylenes at 90.8 µg/L, naphthalene at 2.22 µg/L, o-xylene at 45.3 µg/L, methylene chloride 330 µg/L, and toluene at 2970 µg/L were detected. As a result it is recommended that the waste be classified as hazardous F001, F002 and F005 listed wastes.

Characteristic Wastes Analysis:

The waste is known to be primarily water. Therefore generator's reasonable knowledge may be used to exclude the characteristics of ignitability, reactivity and corrosivity.

No constituents were detected in excess of TCLP limits. Therefore no characteristic waste codes should be applied.

Land Disposal Restrictions Analysis:

Methylene chloride and toluene exceed land disposal restriction limits for wastewaters.



Disposition:

Parsons recommends that this waste be processed through the TEAD wastewater treatment facility.

Parsons will arrange to dispose of the waste per your written instructions.

Table One

[illegible]

From: McFarland, Larry [larry.mcfarland@us.army.mil]

Sent: Thursday, November 18, 2004 7:15 AM

To: Barbas, Jan; Bigelow, Jeff; colec@emh2.tooele.army.mil; reynoldd@emh2.tooele.army.mil; doug.d.mackenzie@usace.army.mil; Jirik, Richard; mcfarlal@emh2.tooele.army.mil; Maryellen.Mackenzie@usace.army.mil

Cc: Kubacki, Steve

Subject: RE: TEAD Phase II RFI Waste Management - Baker Tank
Richard

Based on our discussions earlier this week concerning the disposal of the decon and development water from monitoring wells D-12, D-13, and D-16 you indicated that analysis of the water detected toluene and methylene chloride. Based on this discussion TEAD concurred with your recommendation to dispose of the water at the Ground Water Treatment Plant. On 11/17/04, the TEAD Environmental Office received a copy of the analytical which listed other contaminants in addition to those we had discussed earlier. Based on the analysis provided, the Ground Water Treatment Plant is not permitted to treat all of these constituents. As we are not permitted to treat all of the detected contaminants, the water **CAN NOT** be disposed of at the treatment facility. Parsons should make arrangement to dispose of the water offsite.

Larry McFarland

Environmental Office, SJMTE-CS-EO

1 Tooele Army Depot, Building 8

Tooele, Utah 84074-5003

Phone (435) 833-3235 Fax (435) 833-2839

larry.mcfarland@us.army.mil

mcfarlal@emh2.tooele.army.mil

-----Original Message-----

From: Barbas, Jan [mailto:Jan.Barbas@parsons.com]

Sent: Wednesday, November 17, 2004 3:08 PM

To: Bigelow, Jeff; colec@emh2.tooele.army.mil; reynoldd@emh2.tooele.army.mil; doug.d.mackenzie@usace.army.mil; Jirik, Richard; mcfarlal@emh2.tooele.army.mil; Maryellen.Mackenzie@usace.army.mil

Subject: TEAD Phase II RFI Waste Management - Baker Tank

Hi,

Attached find a memo recommending disposal of the contents of a Baker Tank.

If there are any questions or comments, please contact me or Jeff Bigelow.

Jan Barbas

Project Chemist

parsons

406 W. South Jordan Parkway, Suite 300

Salt Lake City, Utah 84095

(801) 572-5999 Voice

(801) 572-9069 FAX

jan.barbas@parsons.com

www.parsons.com



Analytical Services Center

International Specialists in Environmental Analysis

4493 Walden Avenue

Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: PARSONS ENGINEERING SCIENCE, INC.

Project: Tooele RCRA Phase II

Lab Order: 0411048

CASE NARRATIVE

A trip blank labeled IDWTB4 was received with the IDW12 sample (COC 910). It was not analyzed per Jan Barbas' direction on November 3, 2004.

GCMS VOLATILES

A DB 624 column and a trap packed with OV-1, Tenax, silica gel and activated charcoal was used for the volatile analysis.

Sample Analysis

The volatile samples were determined to be at a pH of 1.

The sample was analyzed within hold time.

Sample IDW12 exceeded the calibration range for methylene chloride and toluene. It was reanalyzed at a 100-fold dilution and both sets of results are reported.

Calibration and Tunes

All initial and continuing calibrations were acceptable.

Manual integrations were not required.

QC

All surrogate recoveries were within acceptable limits.

All blank analyses were acceptable.

All laboratory control sample recoveries were acceptable.

All internal standard area responses were acceptable.

Tony Bogolin

Project Manager

November 16, 2004



Analytical Services Center
International Specialists in Environmental Analysis
Lancaster, New York 14086-
Phone: (716) 685-8080 Fax: (716) 685-0852

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Order: 0411048
ent: Parsons Engineering Science, Inc.
ject: Tooele RCRA Phase II

DATES SUMMARY REPORT

B) Sample ID (CLIENT)	Matrix	Test Name	Collection Date	Received Date	HT (Days) / HT Expire	Analyzed* - Analysis/BatchID	Type	DF	#Analytes	F
1048-01A IDW12	Water	Low Level VOCs by Method 8260B	11/2/2004 2:30:00 PM	11/3/2004 8:50:00 AM	14:C 11/16/2004 2:30:00 PM	11/13/2004 8:33:00 AM 1060885	SAMP	1	21	

From: C-Collection / R- Receipt(VTSR) / P-Prep / T-TCLP Prep

alyzed" reflects the analysis date and time or injection time for analytical tests. For preparation tests "Analyzed" reflects the start of the preparation except when "AFCEE criteria used"; flag indicates date time of completion of the preparation.

TCLP/SPLP Extractions and subsequent preparation tests... "Analyzed" reflects the date of TCLP/SPLP Extraction/preparation. For Re-extracted (RE) samples: Preparation tests completed dates reflects extraction from the original sample leachate unless an "RE" Sample exists for the extraction (tumble) test.



Analytical Services Center
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Lancaster, New York 14086-
Phone: (716) 685-8080 Fax: (716) 685-0852

Laboratory Results

NYS ELAP ID#: 10486

Client: Parsons Engineering Science, Inc.
Project: Tooele RCRA Phase II
Work Order: 0411048

Method References

GCMS Volatiles

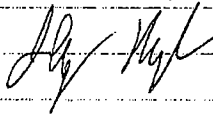
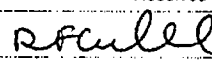
Parsons, Tooele - VOCs, Low Level by GCMS Method 8260B

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. 3rd ed. 1986. Volumes 1A, 1B, 1C & Volume 2. (Includes all Updates). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.

CHAIN OF CUSTODY PARSONS COC ID: 909	Project Name:	Tooele Industrial Area	Contractor:	Parsons - SLC	Parsons Point of Contact: Jan Barbas
	Project Manager:	Ed Staes	Installation:	TEAD	406 W. South Jordan Parkway Suite 300 South Jordan, Utah 84095
	Sample Coordinator:	Jeff Bigelow	Sample Program:	Shallow Soil Sampling	(801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
	IDW12	IDW12	WW	B	N	1	11-2-04	14:30	JJB			3
	Analysis	Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN	4	3			11020401					

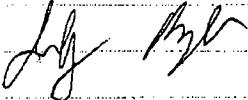

IDW sample for
 Baker Tank PARSN20426801
 (Well Development + Decontamination work
 for wells D-12, D-13, and D-16

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	11-2-04 16:00		11-3-04 8:50

CHAIN OF CUSTODY PARSONS COC ID: 910	Project Name:	Tooele Industrial Area	Contractor:	Parsons - SLC	Parsons Point of Contact: Jan Barbas
	Project Manager:	Ed Staes	Installation:	TEAD	Suite 300
	Sample Coordinator:	Jeff Bigelow	Sample Program:	Shallow Soil Sampling	South Jordan, Utah 84095 (801) 572-5999 FAX (801) 572-9069

Site ID	Location ID	Sample ID	Matrix	Method	Type	Sample No.	Log Date	Log Time	Logged By	Beg. Depth	End. Depth	Total Conts.
	IDWTB4	IDWTB4	WQ	NA	TB	1	11-2-04	14:30	JJB			1
Analysis		Lab	Cooler	No. Conts	AB Lot	EB Lot	TB Lot	Remarks:				
VOC		ECEN	4	1								

Associated with creek water
sample IDW12

Relinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time
	11-2-04 16:00		11-3-04 8:50



Cooler Receipt Form

No. of Packages:	1	Date Received:	11-3-04
Package Receipt No.:	14894	Project or Site Name:	
Client:	Parsons		

A. Preliminary Examination and Receipt Phase		Circle One		
1. Did coolers come with airbill or packing slip?		Yes	No	NA
Circle carrier here and print airbill number below: Fed Ex Airborne Client Other <u>UPS</u>				
Shipped as high hazard or dangerous goods?		Yes	No	NA
2. Did cooler(s) have custody seals?		Yes	No	NA
3. Were custody seals unbroken and intact on receipt?		Yes	No	NA
4. Were custody seals dated and signed?		Yes	No	NA
5. How was package secured? <input type="checkbox"/> Not secured <input type="checkbox"/> Fiberglass Tape <input checked="" type="checkbox"/> Plastic				

B. Unpacking Phase					
6. Date cooler(s) opened: 11-3-04		Cooler(s) opened by: <u>DKull</u>			
7. Was a temperature blank vial included inside cooler(s)?		Yes	No	NA	
Please Record Temperature Vial or Cooler Temperature for Each Cooler, Range (2° - 6°C)*					
Airbill No.	Temp. °C	Airbill No.	Temp. °C	Airbill No.	Temp. °C
84572785	496	6.0			
Thermometer No.: 234	Correction Factor: 0.0	*If temperature is outside of acceptable range, prepare a PM Notification form indicating affected containers.			
8. Were the C-O-C forms received?					Yes No NA
C-O-C forms numbers if present:					
9. Was enough packing material used in cooler(s)?					Yes No NA
Type of material: <input type="checkbox"/> Vermiculite <input type="checkbox"/> Bubble Wrap <input type="checkbox"/> Other					
10. If cooling was required, what was the means (type ice) of cooling used: <input type="checkbox"/> Wet <input type="checkbox"/> Dry <input type="checkbox"/> Blue <input type="checkbox"/> Other					NA
11. Were all containers sealed in separate plastic bags?					Yes No NA
12. Did all containers arrive unbroken and in good condition?					Yes No NA
13. Interim storage area if not logged:					
In: Date		Time		Signature	
Out: Date		Time		Signature	

C. Login Phase	
Samples Logged in By Signature: <u>Wells</u>	Date: 11/3/04
14. Were all container labels complete (e.g. date, time preserved)?	Yes No NA
15. Were all C-O-C forms filled out properly in black ink and signed?	Yes No NA
16. Did the C-O-C form agree with containers received?	Yes No NA
17. Were the correct containers used for the tests requested?	Yes No NA
18. Were the correct preservatives listed on the sample labels?	Yes No NA
19. Was a sufficient sample volume sent for the tests requested?	Yes No NA
20. Were all volatile samples received without headspace?	Yes No NA



Analytical Services Center

International Specialists in Environmental Analysis

4493 Walden Avenue

Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: IDW12

Lab Order: 0411048

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/2/2004 2:30:00 PM % Moist:

Lab ID: 0411048-01A

Sample Type: SAMP

Matrix: Water

Test Code: C_8260B_5030B_LL_W_018

LOW LEVEL VOCs BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		1.00	µg/L	1	11/13/2004 8:33:00 AM	LINUS_041113A	MRD
1,1,2-Trichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethane	ND		1.00	µg/L	1			
1,1-Dichloroethene	ND		1.00	µg/L	1			
1,2-Dichloroethane	ND		1.00	µg/L	1			
1,2-Dichloropropane	ND		1.00	µg/L	1			
Benzene	0.590	J	1.00	µg/L	1			
Carbon tetrachloride	ND		1.00	µg/L	1			
Chloroethane	ND		1.00	µg/L	1			
Chloroform	ND		1.00	µg/L	1			
cis-1,2-Dichloroethene	ND		1.00	µg/L	1			
Ethylbenzene	23.3		1.00	µg/L	1			
m,p-Xylene	90.8		1.00	µg/L	1			
Methylene chloride	332	E	2.00	µg/L	1			
Naphthalene	2.22		1.00	µg/L	1			
o-Xylene	45.3		1.00	µg/L	1			
Tetrachloroethene	ND		1.00	µg/L	1			
Toluene	736	E	1.00	µg/L	1			
trans-1,2-Dichloroethene	ND		1.00	µg/L	1			
Trichloroethene	ND		1.00	µg/L	1			
Vinyl chloride	ND		1.00	µg/L	1			
Surr:1,2-Dichloroethane-d4	99		70 - 130	%REC	1	11/13/2004 8:33:00 AM	LINUS_041113A	MRD
Surr:4-Bromofluorobenzene	93		70 - 130	%REC	1			
Surr:Toluene-d8	96		70 - 130	%REC	1			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits



ANALYTICAL SERVICES CENTER
International Specialists in Environmental Analysis
4493 Walden Avenue
Lancaster, New York 14086

Laboratory Results

NYS ELAP ID#: 10486

Phone: (716) 685-8080

Client: Parsons Engineering Science, Inc.

Client Sample ID: IDW12

Lab Order: 0411048

Alt. Client ID:

Project: Tooele RCRA Phase II

Collection Date: 11/2/2004 2:30:00 PM % Moist:

Lab ID: 0411048-01A

Sample Type: DL

Matrix: Water

Test Code: C_8260B_5030B_LL_W_018

LOW LEVEL VOCS BY METHOD 8260B

Method: SW8260B

Prep Method: SW5030B_LL

Analyte	Result	Q	RL	Units	DF	Date Analyzed	Run Batch ID	Analyst
1,1,1-Trichloroethane	ND		100	µg/L	100	11/14/2004 6:12:00 PM	LINUS_041114B	MRD
1,1,2-Trichloroethane	ND		100	µg/L	100			
1,1-Dichloroethane	ND		100	µg/L	100			
1,1-Dichloroethene	ND		100	µg/L	100			
1,2-Dichloroethane	ND		100	µg/L	100			
1,2-Dichloropropane	ND		100	µg/L	100			
Benzene	ND		100	µg/L	100			
Carbon tetrachloride	ND		100	µg/L	100			
Chloroethane	ND		100	µg/L	100			
Chloroform	ND		100	µg/L	100			
cis-1,2-Dichloroethene	ND		100	µg/L	100			
Ethylbenzene	ND		100	µg/L	100			
m,p-Xylene	61.8	J	100	µg/L	100			
Methylene chloride	330		200	µg/L	100			
Naphthalene	ND		100	µg/L	100			
o-Xylene	23.4	J	100	µg/L	100			
Tetrachloroethene	ND		100	µg/L	100			
Toluene	2970		100	µg/L	100			
trans-1,2-Dichloroethene	ND		100	µg/L	100			
Trichloroethene	ND		100	µg/L	100			
Vinyl chloride	ND		100	µg/L	100			
Surr:1,2-Dichloroethane-d4	103		70 - 130	%REC	100	11/14/2004 6:12:00 PM	LINUS_041114B	MRD
Surr:4-Bromofluorobenzene	98		70 - 130	%REC	100			
Surr:Toluene-d8	91		70 - 130	%REC	100			

Definitions:

* - Recovery outside QC limits

DF - Dilution Factor

H - Value Exceeds Maximum Contaminant Level

N - Single Column Analysis

NP - Petroleum Pattern is not present

B - Analyte found in Method blank

DNI - Did not Ignite

J - Estimated value

NC - Not Calculated

P - Post Spike Recovery outside limits

D - Diluted due to matrix or extended target compounds

E - Result above quantitation limit (high standard or ICP linear range).

M - Matrix Spike Recovery outside limits

ND - Not Detected at the Reporting Limit

R - RPD outside recovery limits

A. GENERAL INFORMATION

GENERATOR EPA ID # **UT3213820894**

GENERATOR CODE (Assigned by Clean Harbors) **TO0469**

ADDRESS **Tooele Army Depot**

GENERATOR PROFILE No. **CH83147**

GENERATOR NAME **Tooele Army Depot**

CITY **Tooele**

STATE **UT** ZIP **84074**

PHONE:

CUSTOMER CODE (Assigned by Clean Harbors) **PAR1392**

ADDRESS **406 W South Jordan Parkway Suite 300**

CUSTOMER NAME: **Parsons Engineering Science In**

CITY **South Jordan**

STATE **UT** ZIP **84095**

B. WASTE DESCRIPTION

WASTE DESCRIPTION: **Purge water and decon water D12, D13, D16**

PROCESS GENERATING WASTE (Please provide detailed description of process generating waste):

Development of monitoring wells and decontamination of drill rig equipment

C. PHYSICAL PROPERTIES (at 25C or 77F)

PHYSICAL STATE SOLID WITHOUT FREE LIQUID POWDER MONOLITHIC SOLID <input checked="" type="checkbox"/> LIQUID WITH NO SOLIDS LIQUID/SOLID MIXTURE % FREE LIQUID % SETTLED SOLID % TOTAL SUSPENDED SOLIDS SLUDGE GAS/AEROSOL		NUMBER OF PHASES/LAYERS <input checked="" type="checkbox"/> 1 2 3 TOP % BY VOLUME (Approx.) MIDDLE BOTTOM		VISCOSITY (If liquid present) <input checked="" type="checkbox"/> 1 - 100 (e.g. WATER) 101 - 500 (e.g. MOTOR OIL) 501 - 10,000 (e.g. MOLASSES) > 10,000		COLOR <u>Clear/Water</u>	
ODOR <input checked="" type="checkbox"/> NONE MILD STRONG Describe:		BOILING POINT <= 95 °F > 95 °F 101 - 129 °F <input checked="" type="checkbox"/> >= 130 °F		MELTING POINT < 140 °F 140-200 °F > 200 °F		TOTAL ORGANIC CARBON <input checked="" type="checkbox"/> <= 1% 1-9% >= 10%	
FLASH POINT < 73 °F 73 - 100 °F 101 - 140 °F 141 - 200 °F <input checked="" type="checkbox"/> > 200 °F		pH <= 2 2.1 - 6.9 <input checked="" type="checkbox"/> 7 (Neutral) 7.1 - 12.4 >= 12.5		SPECIFIC GRAVITY < 0.8 (e.g. Gasoline) 0.8-1.0 (e.g. Ethanol) <input checked="" type="checkbox"/> 1.0 (e.g. Water) 1.0-1.2 (e.g. Antifreeze) > 1.2 (e.g. Methylene Chloride)		ASH < 0.1 > 20 0.1 - 1.0 Unknown 1.1 - 5.0 5.1 - 20.0 Actual:	
Actual:		Actual:		BTU/LB <input checked="" type="checkbox"/> < 2,000 2,000-5,000 5,000-10,000 > 10,000 Actual:		VAPOR PRESSURE (for liquids only) mm Hg	

D. COMPOSITION (List the complete composition of the waste, include any inert components and /or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN -- MAX	UOM	CHEMICAL	MIN -- MAX	UOM
Benzene	0.000 -- 0.000	PPB			
Ethylbenzene	0.000 -- 23.000	PPB			
m,p-Xylene	0.000 -- 90.000	PPB			
Methylene chloride	0.000 -- 332.000	PPB			
o-Xylene	0.000 -- 45.000	PPB			
Toluene	0.000 -- 736.000	PPB			
Water	99.000 -- 100.000	%			
Napthalene	0.000 -- 2.000	PPB			

ANY METAL OBJECTS PRESENT?

YES ☐ NO ☒

If yes include dimension

E. CONSTITUENTS -- Are these values based on testing or knowledge?

☐ Knowledge ☒ Testing

If constituent concentrations are base on analytical testing, analysis must be provided. If based on knowledge, basis of knowledge must be provided below.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D004	ARSENIC	5.0		
D005	BARIUM	100.0		
D006	CADMIUM	1.0		
D007	CHROMIUM	5.0		
D008	LEAD	5.0		
D009	MERCURY	0.2		
D010	SELENIUM	1.0		
D011	SILVER	5.0		

RCRA	VOLATILE COMPOUND	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D018	BENZENE	0.5		0.0
D019	CARBON TETRACHLORIDE	0.5		
D021	CHLOROBENZENE	100.0		
D022	CHLOROFORM	6.0		
D028	1,2-DICHLOROETHANE	0.5		
D029	1,1-DICHLOROETHYLENE	0.7		
D035	METHYL ETHYL KETONE	200.0		
D039	TETRACHLOROETHYLENE	0.7		
D040	TRICHLOROETHYLENE	0.5		
D043	VINYL CHLORIDE	0.2		

RCRA	SEMI-VOLATILE COMPOUND	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D023	o-CRESOL	200.0		
D024	m-CRESOL	200.0		
D025	p-CRESOL	200.0		
D026	CRESOL (TOTAL)	200.0		
D027	1,4-DICHLOROBENZENE	7.5		
D030	2,4-DINITROTOLUENE	0.13		
D032	HEXACHLOROBENZENE	0.13		
D033	HEXACHLOROBUTADIENE	0.5		
D034	HEXACHLOROETHANE	3.0		
D036	NITROBENZENE	2.0		
D037	PENTACHLOROPHENOL	100.0		
D038	PYRIDINE	5.0		
D041	2,4,5-TRICHLOROPHENOL	400.0		
D042	2,4,6-TRICHLOROPHENOL	2.0		

RCRA	PESTICIDES AND HERBICIDE	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D012	ENDRIN	0.02		
D013	LINDANE	0.4		
D014	METHOXYCHLOR	10.0		
D015	TOXAPHENE	0.5		
D016	2,4-D	10.0		
D017	2,4,5-TP (SILVEX)	1.0		
D020	CHLORDANE	0.03		
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008		

OTHER METALS	MIN	MAX	UOM
ALUMINUM			
ANTIMONY			
BERYLLIUM			
CALCIUM			
COPPER			
MAGNESIUM			
MOLYBDENUM			
NICKEL			
POTASSIUM			
SILICON			
SODIUM			
THALLIUM			
TIN			
VANADIUM			
ZINC			

NON-METALS	MIN	MAX	UOM
BROMINE			
CHLORINE			
FLUORINE			
IODINE			
SULFUR			

OTHER NON-METALS	MIN	MAX	UOM
AMMONIA			
REACTIVE SULFIDE			
CYANIDE-TOTAL			
CYANIDE AMENABLE			
CYANIDE REACTIVE			

OTHER CHEMICALS	MIN	MAX	UOM
PHENOL			
Total Petroleum Hydrocarbons			

OTHER	PCBs
HOCs <input checked="" type="checkbox"/> NONE < 1000 PPM >= 1000 PPM	<input checked="" type="checkbox"/> NONE <50 PPM >= 50 PPM IF PCBs ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761? YES <input checked="" type="checkbox"/> NO

ADDITIONAL HAZARDS

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

 YES ☒ NO (If yes, explain)

ASBESTOS	INFECTIOUS, PATHOGENIC, OR ETIOLOGICAL AGENT	REDUCING AGENT
DEA REGULATED SUBSTANCES	OXIDIZER	SHOCK SENSITIVE
DIOXIN	OSHA REGULATED CARCINOGENS	SPONTANEOUSLY IGNITES WITH AIR
EXPLOSIVE	PESTICIDE	THERMALLY SENSITIVE
HERBICIDE	POLYMERIZABLE	WATER REACTIVE
FUMING / SMOKING WASTE	RADIOACTIVE	
NONE OF THE ABOVE		

F. REGULATORY STATUS

☒ YES NO USEPA HAZARDOUS WASTE?
F001 F002 F003 F005

YES ☒ NO DO ANY STATE WASTE CODES APPLY?

☒ YES NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?
 LDR CATEGORY: **This is subject to LDR.**

VARIANCE INFO:
☒ YES NO IS THIS A WASTEWATER PER 40 CFR PART 268.2?
 YES ☒ NO IF ANY WASTE CODES D001, D002, D003 (OTHER THAN REACTIVE CYANIDE OR REACTIVE SULFIDE), D004-D0011, D012-D017
 NON-WASTEWATERS, OR D018- D043 APPLY, ARE ANY UNDERLYING HAZARDOUS (UHCs) PRESENT ABOVE UNIVERSAL TREATMENT

YES ☒ NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?
 YES ☒ NO IS THIS WASTE SUBJECT TO CATEGORICAL PRETREATMENT DISCHARGE STANDARDS?
 IF YES, SPECIFY POINT SOURCE CATEGORY LISTED IN 40 CFR PART 4

YES ☒ NO IS THIS WASTE REGULATED UNDER THE BENZENE NESHAP RULES? (IS THIS WASTE FROM A CHEMICAL MANUFACTURING, COKE BY-PRODUCT
 RECOVERY, OR PETROLEUM REFINERY PROCESS?)

YES ☒ NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?
 YES ☒ NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?
 YES ☒ NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE GREATER THAN
 77 KPa (11.2PSIA)?

YES ☒ NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE ?

G. D.O.T INFORMATION: (Include proper shipping name, hazard class and ID number).

US D.O.T. DESCRIPTION: **Hazardous waste, liquid, n.o.s., (Benzene, Ethylbenzene, Xylenes, Methylene Chloride, Naphthalene, Toluene) , 9,**

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY: ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY ☒ OTHER Varies
 IF BULK LIQUID OR BULK SOLID PLEASE INDICATE THE EXPECTED NUMBER OF LOADS PER SHIPPING FREQUENCY

CONTAINERIZED	<input checked="" type="checkbox"/> BULK LIQUID	BULK SOLID
0 CONTAINERS/SHIPMENT	GALLONS/SHIPMENT: 1,000Min -6,000 Max GAL.	SHIPMENT UOM: TON YARD
STORAGE CAPACITY:	<input checked="" type="checkbox"/> FROM TANKS: TANK SIZE 6,000 GAL.	PER SHIPMENT: 0.00 MIN 0.00 MAX
CONTAINER TYPE:	FROM DRUMS	STORAGE CAPAC! TON/YD
CUBIC YARD BOX	VEHICLE TYPE:	VEHICLE TYPE:
PALLET	VAC TRUCK	DUMP TRAILER
TOTE TANK	<input checked="" type="checkbox"/> TANK TRUCK	ROLL OFF BOX
OTHER:	RAILROAD TANK CAR	INTERMODAL ROLLOFF BOX
DRUM SIZE:	CHECK COMPATIBLE STORAGE MATERIAL	CUSCO/VACTOR
CONTAINER MATERIAL:	<input checked="" type="checkbox"/> STEEL <input checked="" type="checkbox"/> STAINLESS STEEL	OTHER
<input checked="" type="checkbox"/> STEEL	<input checked="" type="checkbox"/> RUBBER LINED <input checked="" type="checkbox"/> FIBERGLASS LINED	
FIBER	<input checked="" type="checkbox"/> DERAKANE	
PLASTIC	OTHER	
OTHER		

I. SPECIAL REQUEST

SPECIFIC DISPOSAL RESTRICTIONS OR REQUESTS:
 SPECIAL WASTE HANDLING REQUIREMENTS
 OTHER COMMENTS OR REQUESTS:

J. BIENNIAL / ANNUAL REPORTING INFORMATION

SIC CODE **9711** SOURCE CODE **A09** FORM CODE **B119** ORIGIN CODE **2**

K. SAMPLE STATUS

REPRESENTATIVE SAMPLE HAS BEEN SUPPLIE YES
☒ NO SAMPLED BY DATE SAMPLED WHERE SENT

GENERATORS CERTIFICATION

I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I also certify that any samples submitted are representative of the actual waste. If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE NAME (PRINT) TITLE DATE

FOR CLEAN HARBORS USE ONLY

CHI REPRESENTATIVE COMPLETING PROFILE: _____

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address Tooele Army Depot Environmental Office, SJMTE-CS EO Building 8, Attn: Dean Reynolds, Tooele, UT 84074		4. Generator's Phone (435) 833-3504		A. State Manifest Document Number		
5. Transporter 1 Company Name MP Environmental		6. US EPA ID Number CAT00624247		B. State Generator's ID		
7. Transporter 2 Company Name		8. US EPA ID Number		C. State Transporter's ID		
9. Designated Facility Name and Site Address Clean Harbors Aragonite Facility 11600 N. Aptees Road Aragonite, UT 84029		10. US EPA ID Number UTD981552177		D. Transporter's Phone (435) 843-7802		
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)		12. Containers		13. Total Quantity		14. Unit Wt/Vol
a. <input type="checkbox"/> HM Hazardous Waste Liquid, n.o.s. (Benzene, Ethylbenzene, Xylenes, Methylene Chloride, Naphthalene, Toluene), 9, NA3082, PGIII		No. Type		Quantity		Waste No.
b. <input type="checkbox"/>		No. Type		Quantity		Waste No.
c. <input type="checkbox"/>		No. Type		Quantity		Waste No.
d. <input type="checkbox"/>		No. Type		Quantity		Waste No.
J. Additional Descriptions for Materials Listed Above		K. Handling Codes for Wastes Listed Above				
a. CH83147B - Decon and Development Water		D-12 D-13 D-16 PARS N20926801				
15. Special Handling Instructions and Additional Information Emergency Contact - Tooele Army Depot Fire Department (435) 833-2015						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						
Printed/Typed Name		Signature			Month Day Year	
17. Transporter 1 Acknowledgement of Receipt of Materials						
Printed/Typed Name		Signature			Month Day Year	
18. Transporter 2 Acknowledgement of Receipt of Materials						
Printed/Typed Name		Signature			Month Day Year	
19. Discrepancy Indication Space						
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.						
Printed/Typed Name		Signature			Month Day Year	

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. UT3213820894		Manifest Document No. 124015		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.							
3. Generator's Name and Mailing Address Tooele Army Depot Environmental Office, SJMTE-CS EO, Building 8, Attn: Dean Reynolds, Tooele, UT 84074						A. State Manifest Document Number									
						B. State Generator's ID									
4. Generator's Phone (435) 833-3504						C. State Transporter's ID									
5. Transporter 1 Company Name MP Environmental						D. Transporter's Phone (435) 843-7802									
6. US EPA ID Number CAT00624247						E. State Transporter's ID									
7. Transporter 2 Company Name						F. Transporter's Phone									
8. US EPA ID Number						G. State Facility's ID									
9. Designated Facility Name and Site Address Clean Harbors Aragonite Facility 11600 N. Aptees Road Aragonite, UT 84029						H. Facility's Phone (801) 323-8100									
10. US EPA ID Number UTD981552177															
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)						12. Containers		13. Total Quantity		14. Unit Wt/Vol		15. Waste No.			
						No. Type									
						a. Hazardous Waste Liquid, n.o.s. (Benzene, Ethylbenzene, Xylenes, Methylene Chloride, Naphthalene, Toluene), 9, NA3082, PG III						sec. P		F001, F002, F003, F005	
						b.									
						c.									
d.															
J. Additional Descriptions for Materials Listed Above						K. Handling Codes for Wastes Listed Above									
a. CH83147B - Decon and Development Water <i>D-12 D-13 D-16</i>						<i>PAKSN20426801</i>									
15. Special Handling Instructions and Additional Information Emergency Contact -- Tooele Army Depot Fire Department (435) 833-2015															
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.															
Printed/Typed Name					Signature					Month Day Year					
17. Transporter 1 Acknowledgement of Receipt of Materials															
Printed/Typed Name					Signature					Month Day Year					
18. Transporter 2 Acknowledgement of Receipt of Materials															
Printed/Typed Name					Signature					Month Day Year					
19. Discrepancy Indication Space															
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.															
Printed/Typed Name					Signature					Month Day Year					



UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. UT3213820894	Manifest Document No. 43317	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address Tooele Army Depot Environmental Office, SJMTE-CS-EO Building 8, Attn: Dean Reynolds, Tooele, UT 84074				A. State Manifest Document Number		
4. Generator's Phone (435) 833-3504				B. State Generator's ID		
5. Transporter 1 Company Name MP Environmental		6. US EPA ID Number CAT00624247		C. State Transporter's ID		
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone (435) 843-7802		
9. Designated Facility Name and Site Address Clean Harbors Aragonite Facility 11600 N. Aptees Road Aragonite, UT 84029		10. US EPA ID Number UTD981552177		E. State Transporter's ID		
				F. Transporter's Phone		
				G. State Facility's ID		
				H. Facility's Phone (801) 323-8100		
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)		12. Containers	13. Total Quantity	14. Unit	I. Waste No.	
a. <input type="checkbox"/> HM Hazardous Waste Liquid, n.o.s. (Benzene, Ethylbenzene, Xylenes, Methylene Chloride, Napthalene, Toluene), 9, NA3082, PG III		No. Type		Unit	Waste No.	
b.						
c.						
d.						
J. Additional Descriptions for Materials Listed Above				K. Handling Codes for Wastes Listed Above		
a. CH83147B - Decon and Development Water				PAPERS 20426801 Rinse out water		
15. Special Handling Instructions and Additional Information						
Emergency Contact - Tooele Army Depot Fire Department (435) 333-2015 ERG #171						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						
Printed/Typed Name Larry McFarland		Signature Larry McFarland		Month Day Year 12/2/04		
17. Transporter 1 Acknowledgement of Receipt of Materials		Printed/Typed Name Ken Porter		Signature Ken Porter		Month Day Year 12/2/04
18. Transporter 2 Acknowledgement of Receipt of Materials		Printed/Typed Name		Signature		Month Day Year
19. Discrepancy Indication Space						
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.						
Printed/Typed Name		Signature		Month Day Year		

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. UT3213820894	Manifest Document No. P4011	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address Tooele Army Depot Environmental Office, SJMTE-CS-EO Building 8, Attn: Dean Reynolds, Tooele, UT 84074 4. Generator's Phone (435) 833-3504				A. State Manifest Document Number	
5. Transporter 1 Company Name MP Environmental				B. State Generator's ID	
6. US EPA ID Number CAT00062427				C. State Transporter's ID	
7. Transporter 2 Company Name				D. Transporter's Phone (435) 843-7802	
8. US EPA ID Number				E. State Transporter's ID	
9. Designated Facility Name and Site Address Tooele Army Depot Environmental Office, SJMTE-CS-EO Utah Industrial Depot, Jade St. and B Ave., Tooele, UT 84074				F. Transporter's Phone	
10. US EPA ID Number UT3213820894				G. State Facility's ID	
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)				H. Facility's Phone (801) 971-8415	
12. Containers No. Type				13. Total Quantity	
14. Unit Wt/Vol				1. Waste No.	
a. Hazardous Waste Liquid, N.O.S. (TCE), 9, NA3082, PG III				est. P F001 F002	
b.					
c.					
d.					
J. Additional Descriptions for Materials Listed Above a. Trichloroethylene Well D-13 (Tanker) 50501205 PARSA2042930X → PARSA20426801				K. Handling Codes for Wastes Listed Above	
15. Special Handling Instructions and Additional Information Emergency Contact - Tooele Army Depot Fire Department (435) 833-2015					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name Larry McFarland				Signature Larry McFarland	
17. Transporter 1 Acknowledgement of Receipt of Materials				Month Day Year 11/22/04	
Printed/Typed Name GARY HILL				Signature Gary Hill	
18. Transporter 2 Acknowledgement of Receipt of Materials				Month Day Year 11/22/04	
Printed/Typed Name				Signature	
19. Discrepancy Indication Space				Month Day Year	
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.					
Printed/Typed Name Mike D Reynolds				Signature Mike D Reynolds	
				Month Day Year 11/22/04	